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Municipal Finance Officers Association of
United States and Canada, Washington, DC

Prepared for

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This guidebook has been developed for EPA's Office of Water Program Operations to describe and explain a suggested pratical approach which may be used by a unit of government to prepare a demonstration of financial capability. The intent of this demonstration is to ensure adequate building, operation, maintenance, and replacement of a publicly owned treatment works.

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EPA FINANCIAL CAPABILITY GUIDEBOOK

U.S. Environmental Protection Agency
Office of Water Program Operations
Washington, DC

This report has been reviewed by EPA and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Prepared by the Government Finance Research Center of the Municipal Finance Officers Association and Peat, Marwick, Mitchell & Co.

This document is available to the public through the National Technical Information Service, Springfield, Virginia 22151.

FOREWORD

This guidebook has been developed for EPA's Office of Water Program Operations to describe and explain a suggested practical approach which may be used by a unit of government to prepare a demonstration of financial capability. The intent of this demonstration is to ensure adequate building, operation, maintenance, and replacement of a publicly owned treatment works. It is to be noted that the statements, conclusions, and recommendations contained herein are not to be construed as setting forth any legal or regulatory requirements beyond those set forth in the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et seq.) and the Construction Grants Regulation, 40 CFR, Part 35.

This publication was originally written by Catherine L. Spain, Hamilton Brown, and Pat Watt of the Government Finance Research Center (GFRC) and Larry J. Scully of Peat, Marwick, Mitchell & Co. EPA staff who reviewed it are Myron Tiemens, Paul Kraman, Jim Meek, Lee Pasarew, Betsy LaRoe, George Gray, Donald Kunkoski, Keith Dearth, George Ames, Connie Bosma, William Kramer, and Jerre Manarolla. James Fagan, Joseph T. Kelley (GFRC) and Suzanne Zoda also worked on the second edition.

TABLE OF CONTENTS

Chapter		Page
I.	Introduction	
	o Purpose of the Guidebook	1
	o Guidebook Audience	2
	o Approach Used in this Guidebook	4
	o Application and Evaluation Procedures	4
	o Guidebook Organization	7
II.	Overview of Approach and Notes on the Preparation of a Financial Capability Analysis	
	o An Overview of the Approach	9
	o - Worksheet #1: Roles and Responsibilities of Local Governments	9
	- Worksheet #2: Facilities Cost Estimate	9
	- Worksheet #3: Financing the Facilities	11
	- Worksheet #4: Determining the Annual Costs per Household	11
	- Worksheet #5: Assessing the Community's Debt History	11
	- Worksheet #6: Evaluating the Community's Financial Condition	12
	o Notes on the Preparation of a Financial Capability Analysis	12
	- Obtaining the Data	13
	- Estimating Needed Data	13
	- Knowing Which Number to Use When There's a Choice	13
	- Recognizing the Effect of Different Accounting Methods	13
	- Incorporating Trend Analysis into the Financial Capability Assessment	14
	- Taking Account of Inflation and Economic Change	14
	- Considering Overlapping Debt	14
	- Funding Financial Capability Analysis	15
III.	Financial Capability Analysis Worksheets and Instructions	
	o Evaluating Results of the Analysis	17
	- Worksheet #1: Roles and Responsibilities of Local Governments	23
	- Worksheet #2: Facilities Cost Estimate	27

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- Worksheet #3: Financing the Facilities 35
- Worksheet #4: Determining the Annual Costs 47
- Worksheet #5: Assessing the Community's Debt History 53
- Worksheet #6: Evaluating the Community's Financial Condition 59

Appendices

A. Selected References A-3

B. Glossary of Financial Terms B-3

C. The Calculation of Capital Recovery Factors C-3

D. Sensitivity Analysis D-3

LIST OF EXHIBITS

Page

Exhibit I Integration of Financial Capability Analysis into the Construction Grants Process 3

Exhibit II Relationship of Guidebook to Financial Capability Policy Facilities 5

Exhibit III Flow of Information from Source Documents to Worksheets 10

Exhibit IV Overlapping Debt in Community "A" 16

Exhibit V Wastewater Facilities Financial Information Sheet 19

Exhibit VI Basis for Identification of Regional Costs 24

Exhibit VII Supplemental Information Sheet 52

CHAPTER I

INTRODUCTION

Purpose of the Guidebook

This Financial Capability Guidebook is designed to assist your community as it considers the commitment of public funds to construct wastewater facilities. Constructing, operating, and maintaining a wastewater system represents a major financial undertaking which affects the local government as well as the customers who will bear the ultimate cost burden. It is important that your community and its residents fully understand the cost implications of the plan; successful implementation depends on their support. Careful analysis of the financial and management aspects of the system alternatives will more likely result in the choice of a plan which the community can support.

This is the basis of EPA's Policy on Financial and Management Capability as it applies to the Federal Construction Grants Program. Before receiving a Step 3 or 2+3 grant, your community must be able to demonstrate that it has the financial capability to pay for the capital investment and the cost of operation and maintenance of the system, including equipment replacement (O,M&R). 1/

The Policy requires applicants to address the following five questions:

1. What is proposed in the facility plan?
2. What roles and responsibilities will local governments have?
3. How much will the facilities cost at today's prices?
4. How will construction and operation of the facilities be financed?
5. What are the annual costs per household?

In addition, community officials must certify in writing that the community has analyzed the costs and financial impacts of the proposed facilities and that it has the capability to finance and manage the construction and operation of the facilities in accordance with the construction grants regulations.

1/ This demonstration is required by the Clean Water Act, as amended, as well as the revised Construction Grants regulations and the Policy on Financial and Management Capability. The applicant must submit, along with the Step 3 or 2+3 application, a letter certifying that it has analyzed the costs and financial impacts of the proposed facilities and that it has the capability to finance and manage construction and operation. The certification letter should be signed by an elected official or chief financial officer authorized to commit funding for the municipality.

To demonstrate financial capability as required for an EPA construction grant, an applicant should complete a form called the Wastewater Facilities Financial Information Sheet (Exhibit V) or comparable information in a format stipulated by the delegated State and the written certification described above. The Guidebook also contains a form called the Supplemental Information Sheet (Exhibit VII) which is useful in evaluating the overall financial condition of the community. Although not specifically required for the grant application, this sheet provides additional information for determining financial capability to finance and support the wastewater system. 2/

While demonstration of financial capability is not required until the Step 3 or 2+3 application is made, the financial assessment must be built into the planning and design stages of any project for which Federal funding will be sought. Changes in economic growth, indebtedness, tax revenues, and other community characteristics may well influence critical choices as a project moves toward the construction phase. The time line in Exhibit I recommends the appropriate level of analysis for the various stages of project development. The preliminary financial analysis undertaken during the planning stage should identify for all parties involved the range of financial and administrative responsibilities they will share, including estimates of construction, O,M&R, and household costs. The more detailed analysis during the design stage should refine the preliminary analysis and be used as a basis for developing the user charge system. The preliminary financial analysis should help your community select the most cost-effective and technically appropriate solution for your water quality problems.

Guidebook Audience

While this Guidebook can be used by grant applicants from incorporated and unincorporated areas of any size, it is written especially to assist communities with populations of 10,000 or less, that:

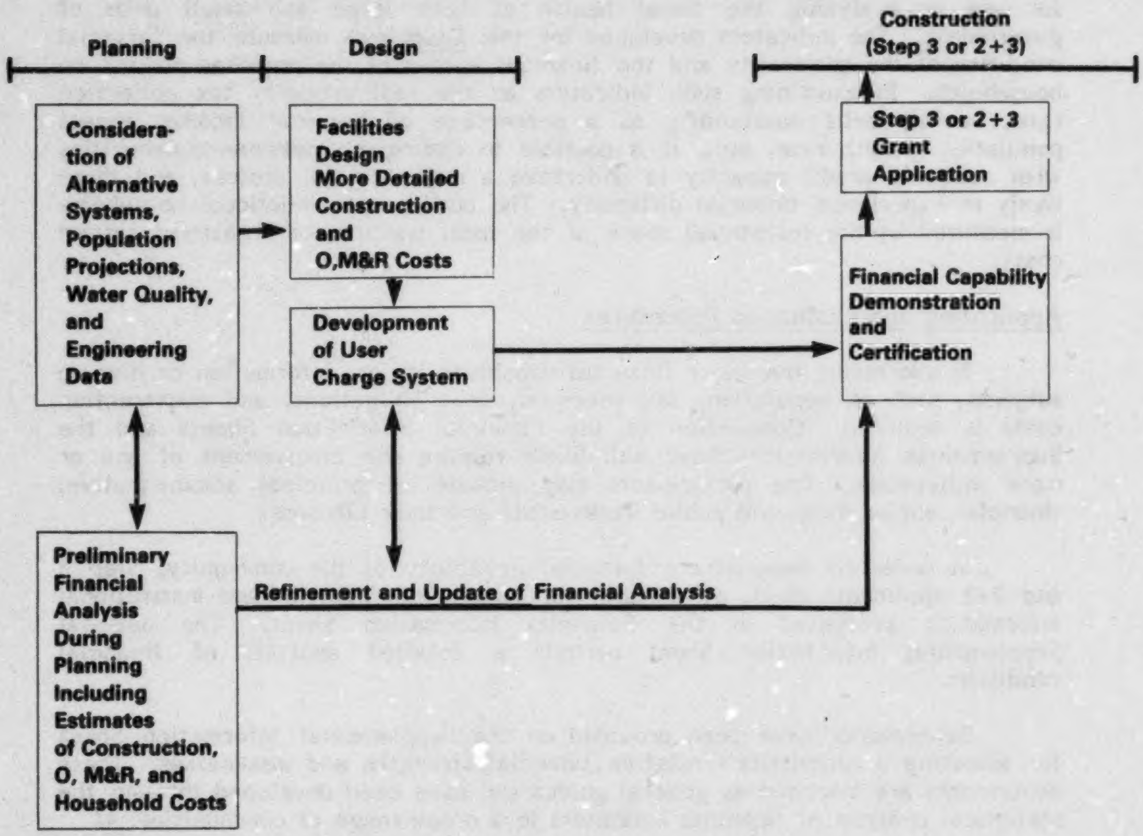
- provide service only within a single jurisdiction or sanitary district; or
- represent an independent service area within a regional system.

Guidance is particularly important for this primary audience since communities of this size account for nearly 70 percent of the total number of Federal construction grants awarded.

2/ In order to account for unique aspects of State laws governing local financing and institutional arrangements, all States are encouraged to develop specific guidance and procedures for communities to use to demonstrate financial capability. The grant applicant may use any format it chooses to meet the requirement, including, as examples, a financial plan, a separate chapter in the facilities plan, or procedures as prescribed by a delegated State, provided that the information required is adequately addressed.

EXHIBIT I

INTEGRATION OF FINANCIAL CAPABILITY ANALYSIS INTO THE FACILITIES PLANNING PROCESS


Planning
Design
Construction (Step 3 or 2+3)
Consideration of Alternative Systems, Population Projections, Water Quality, and Engineering Data
Facilities Design More Detailed Construction and O,M&R Costs
Development of User Charge System
Step 3 or 2+3 Grant Application
Financial Capability Demonstration and Certification
Preliminary Financial Analysis During Planning Including Estimates of Construction, O, M&R, and Household Costs
Refinement and Update of Financial Analysis

Approach Used in this Guidebook

Before a community is able to borrow money, lending institutions and other potential investors must have an indication of the community's financial strength. Bond ratings are the best known and most commonly used measure. The methodology used in this Guidebook relies on traditional credit analysis developed by rating services. 3/ The techniques have been modified so that local officials can work through the analysis themselves. Whenever possible, the Guidebook uses nontechnical terminology to describe the information and processes involved in financial capability analysis.

Long used in the private sector, financial indicators have been developed for use in analyzing the fiscal health of both large and small units of government. The indicators developed for this Guidebook measure the financial condition of the community and the financial burden of the proposed project on households. In examining such indicators as the real property tax collection rate, overall debt outstanding as a percentage of personal income, annual population growth rate, etc., it is possible to distinguish between communities with adequate credit capacity to undertake a major capital project, and those likely to experience financial difficulty. The burden upon individual households is measured by the residential share of the total wastewater treatment system costs.

Application and Evaluation Procedures

In addressing the major financial capability issues, information on diverse subjects, such as population, tax revenues, debt obligations, and construction costs is required. Completion of the Financial Information Sheets and the Supplemental Information Sheet will likely require the involvement of one or more individuals. The participants may include all principal administrative, financial, engineering, and public works staff and their advisors.

In order to demonstrate financial capability of the community, Step 3 and 2+3 applicants must, at a minimum, submit the financial and institutional information presented in the Financial Information Sheet. The optional Supplemental Information Sheet permits a detailed analysis of financial condition.

Benchmarks have been provided on the Supplemental Information Sheet for assessing a community's relative financial strengths and weaknesses. These benchmarks are intended as general guides and have been developed through the statistical analysis of financial indicators in a broad range of communities. 4/

3/ Moody's Investors Service and Standard and Poors Corporation are the best known rating agencies.

4/ These indicators do not take into account State laws affecting a community's ability to raise revenues. Therefore, State-specific benchmarks may be more restrictive or liberal, depending on the circumstances.

EXHIBIT II

RELATIONSHIP OF GUIDEBOOK TO FINANCIAL CAPABILITY POLICY

EPA POLICY ON FINANCIAL AND MANAGEMENT CAPABILITY— REQUIREMENTS	APPROPRIATE WORKSHEET IN GUIDEBOOK	RESULTS ARE SUMMARIZED IN:
1. Facility Plan[1]		
2. Rules and Responsibilities	Worksheet #1	Wastewater Facilities Financial Information Sheet (Exhibit V)
3. Current Costs	Worksheet #2	
4. Financing	Worksheet #3	
5. Annual Household Costs	Worksheet #4	
Certification	Worksheets #5 & #6 (optional, not required by Policy)	Supplemental Information Sheet (Exhibit VII)

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[1] There is no worksheet in the *Guidebook* which corresponds to the Facility Plan question in the Policy. Information to answer this question should come directly from the Facility Plan itself.

When assessing this financial information, some communities may decide that the proposed treatment system is not financially feasible. In such cases, a number of potentially less costly alternatives may be considered. 6/

a) Restructuring of the financing may considerably reduce the assessments or the monthly carrying charges.

b) Upgrading, rehabilitation, and/or proper operation and maintenance of existing on-site systems should be considered.

c) Innovative or alternative wastewater treatment processes may be less centralized, less structured, less energy intensive, and sometimes simpler to operate. Some examples are: septic systems, mounds, cluster systems, and overland flow. Another example is the use of alternative conveyance systems, such as small diameter gravity and pressure sewers to carry septic tank effluent to better subsurface treatment and disposal sites. In many areas, similar systems can carry wastewater at a fraction of the capital cost and often at lower maintenance and operation costs than conventional gravity sewers and central treatment. These technologies, grouped together as Small Alternative Wastewater Systems, are particularly appropriate for rural areas or for portions of larger communities with dispersed populations. 7/

d) Staged project development allows a community to finance the facilities over an extended time period rather than to finance the entire project all at once. Legally imposed debt limits or large projected population increases may dictate staged development. However, EPA regulations on phased and segmented projects may discourage this. EPA regulations (Section 35.2108) should be consulted before communities decide to stage a project.

e) A community's financial constraints may require that the project be redesigned. Modifications might include smaller facilities, less sophisticated treatment processes to lower investment and O,M&R costs, or elements of both. Alternatives might include trickling filters or ponds.

6/ EPA regulations (Section 35.2030) require sewered communities with a population of 10,000 or less to give consideration to appropriate low cost technologies — facultative ponds, trickling filters, oxidation ditches, or overland flow land treatment — and for unsewered communities of 10,000 or less, consideration must be given to on-site systems.

7/ Less Costly Wastewater Treatement for Your Town, U.S. E.P.A., March 1983.

A community that believes that water quality standards impose a severe economic burden may wish to seek a modification of water quality permit standards. Under Section 302(b)(2) of the Water Pollution Control Act (PL 97-117), affected parties may petition for a change in effluent standards if they can demonstrate at a public hearing that "there is no reasonable relationship between the economic and social costs and benefits to be obtained..." By law, the State administrator may adjust the water quality standards if the costs are judged to be unreasonable.

Guidebook Organization

This Guidebook contains information, worksheets, and instructions which provide an approach to answering the five questions. There are six worksheets in which detailed information is developed and two summary information sheets which consolidate the results. The six individual worksheets provide a format to develop detailed cost, financing, and management information pertaining to the proposed wastewater system, and financial indicators relating to the community's overall condition. The relationship between the Guidebook worksheets and the five Financial Capability Policy questions is shown in Exhibit II.

The "Wastewater Facilities Financial Information Sheet" (Exhibit V) provides a format that can be used to summarize the answers to the five questions posed by the Financial and Management Capability policy. Question 1 (above) requests a synopsis of facility plan information, and the answers to Questions 2-5 may be developed by using Guidebook Worksheets #1 - #4; this information may then be transferred to the Wastewater Facilities Financial Information Sheet. The "Supplemental Information Sheet" (Exhibit VII) is a summary of the information developed on Worksheets #5 and #6, providing 11 key indicators by which a community may evaluate its overall financial condition.

This chapter of the Financial Capability Guidebook introduces the reader to the purpose of the Guidebook and the major issues that will be addressed. Chapter II explains the approach to be used in completing the worksheets as well as some notes on locating and understanding information sources. Chapter III presents and explains the Wastewater Facilities Financial Information Sheet and the first four worksheets. In the last section of Chapter III, the Supplemental Information Sheet and the fifth and sixth worksheets are explained. Appendix A has been included to provide references to other resource materials on financial indicators, credit analysis, and financial capability. Definitions of the more technical terms used in the worksheets are found in Appendix B. Appendix C demonstrates how to calculate a Capital Recovery Factor. Appendix D discusses how to perform a sensitivity analysis and how it can be used to test the impact of differing assumptions.

CHAPTER II

OVERVIEW OF APPROACH AND NOTES ON THE PREPARATION OF A FINANCIAL CAPABILITY ANALYSIS

Chapter I has introduced you to the purpose of the Guidebook and the methods you can use to analyze your community's financial capability. To assist you in filling out the worksheets as accurately and thoroughly as possible, this chapter provides an "Overview of the Approach" which is intended to provide an understanding of how one source of information will influence or be influenced by another. In addition, the chapter contains some "Notes on the Preparation of a Financial Capability Analysis," which anticipate difficulties in locating or putting together necessary information for the worksheets.

An Overview of the Approach

The key to understanding the approach used is to recognize the interrelationships between information used in the analysis of financial capability and the results of the analysis. Exhibit III illustrates the flow of information from source documents to the worksheets and then downward from worksheet to worksheet until it reaches its final destination on the Wastewater Facilities Financial Information Sheet (Exhibit V) or the Supplemental Information Sheet (Exhibit VII). As an introduction to the worksheets in Chapter III, a brief description of each follows, with a list of the major resources to be consulted for its completion.

Worksheet #1: Roles and Responsibilities of Local Governments. Worksheet #1 is intended to summarize the key management agencies, the roles they will be assigned, and the agreements that will be needed to provide for continued cooperation in the management of the facilities. An applicant proposing to construct a wastewater treatment facility designed to serve two or more public agencies must show how the costs will be allocated among the participating jurisdictions or agencies. Among the documents used in filling out this worksheet are:

- preliminary agreements reached during the planning and design stages; and
- map(s) of the overlapping jurisdictions that collect taxes or charge user fees within the wastewater service area.

Worksheet #2: Facilities Cost Estimate. A realistic assessment of financial capability depends on accurate estimates of construction, operation, maintenance, and replacement costs for the proposed wastewater facilities. These estimates provide the basis for determining both the amount of local financing required and the annual cost to the user necessary to support the new facilities. Worksheet #2 summarizes the construction costs and operation,

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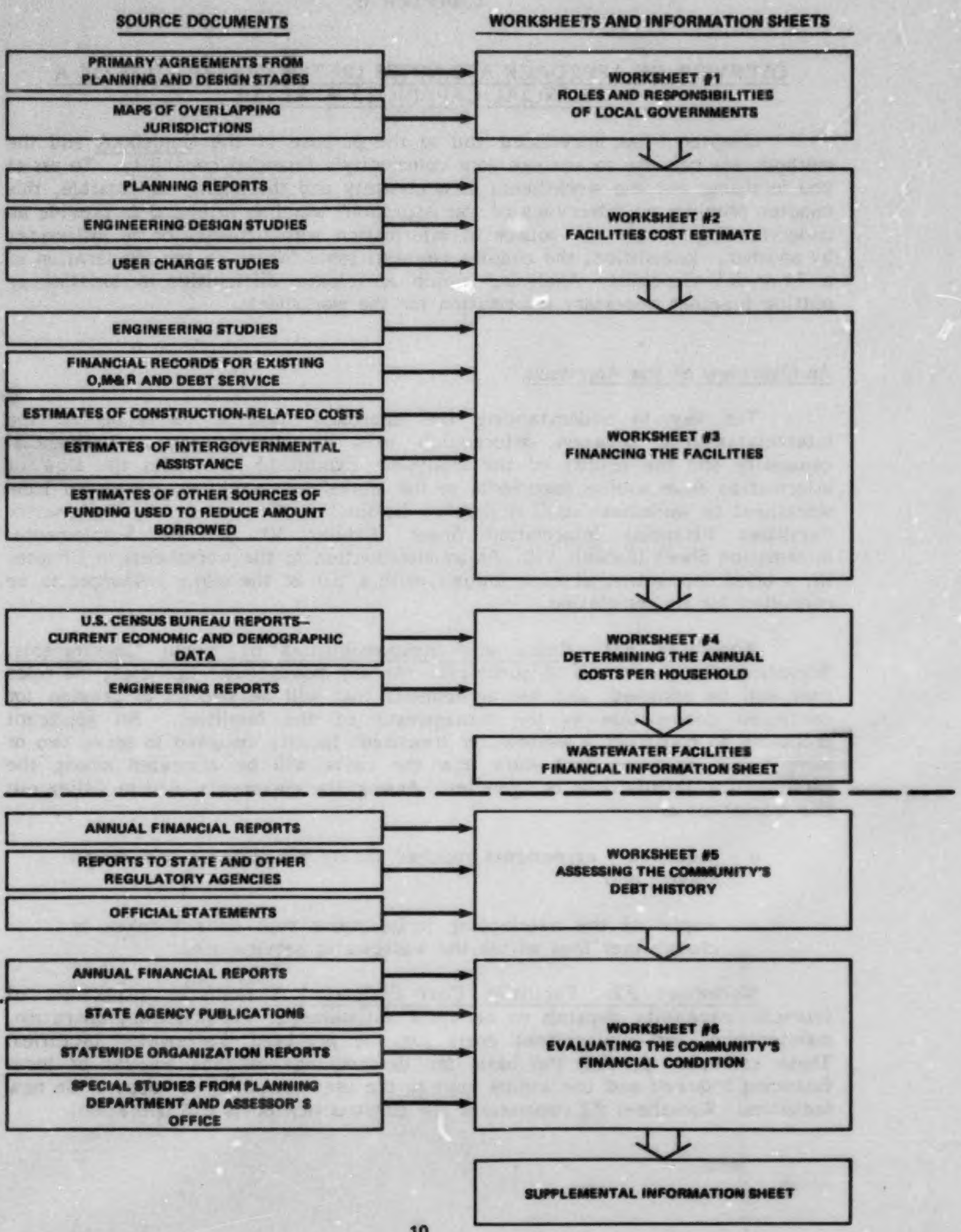
EXHIBIT III

FLOW OF INFORMATION FROM SOURCE DOCUMENTS TO WORKSHEETS


SOURCE DOCUMENTS
WORKSHEETS AND INFORMATION SHEETS
PRIMARY AGREEMENTS FROM PLANNING AND DESIGN STAGES
MAPS OF OVERLAPPING JURISDICTIONS
WORKSHEET #1 ROLES AND RESPONSIBILITIES OF LOCAL GOVERNMENTS
PLANNING REPORTS
ENGINEERING DESIGN STUDIES
USER CHARGE STUDIES
WORKSHEET #2 FACILITIES COST ESTIMATE
ENGINEERING STUDIES
FINANCIAL RECORDS FOR EXISTING O,M&R AND DEBT SERVICE
ESTIMATES OF CONSTRUCTION-RELATED COSTS
ESTIMATES OF INTERGOVERNMENTAL ASSISTANCE
ESTIMATES OF OTHER SOURCES OF FUNDING USED TO REDUCE AMOUNT BORROWED
WORKSHEET #3 FINANCING THE FACILITIES
U.S. CENSUS BUREAU REPORTS— CURRENT ECONOMIC AND DEMOGRAPHIC DATA
ENGINEERING REPORTS
WORKSHEET #4 DETERMINING THE ANNUAL COSTS PER HOUSEHOLD
WASTEWATER FACILITIES FINANCIAL INFORMATION SHEET
ANNUAL FINANCIAL REPORTS
REPORTS TO STATE AND OTHER REGULATORY AGENCIES
OFFICIAL STATEMENTS
WORKSHEET #5 ASSESSING THE COMMUNITY'S DEBT HISTORY
ANNUAL FINANCIAL REPORTS
STATE AGENCY PUBLICATIONS
STATEWIDE ORGANIZATION REPORTS
SPECIAL STUDIES FROM PLANNING DEPARTMENT AND ASSESSOR'S OFFICE
WORKSHEET #6 EVALUATING THE COMMUNITY'S FINANCIAL CONDITION
SUPPLEMENTAL INFORMATION SHEET

maintenance, and replacement costs for the proposed system. 1/ Estimates in today's prices should be developed for all of the costs that will be incurred, including management, overhead, outside services, and equipment replacement. The major sources of information for Worksheet #2 are:

- planning reports;
- engineering design studies; and
- user charge studies.

Worksheet #3: Financing the Facilities. Worksheet #3 estimates the amount to be borrowed by the grantee and the methods of financing that amount. Total annual costs, which include operation, maintenance, replacement, and debt service for the new as well as existing facilities, are then calculated and a summary of the sources of funds for paying the annual costs is provided. Information for completing this worksheet comes from Worksheets #1 and #2 as well as:

- engineering studies;
- community financial records showing existing O,M&R and debt service costs;
- cost estimates of construction-related costs obtained from outside experts;
- estimates of construction costs to be paid by Federal and/or State governments;
- estimates of other sources of funding that will be used to reduce the amount borrowed; and
- method of financing the amount to be borrowed.

Worksheet #4: Determining the Annual Costs Per Household. The purpose of this worksheet is to determine the total annual costs per household for the community's wastewater treatment system. The information required on this worksheet comes principally from Worksheets #2 and #3, but it also relies on:

- U.S. Census Bureau reports on current economic and demographic data; and
- engineering reports.

Worksheet #5: Assessing the Community's Debt History. The purpose of this worksheet is to profile and summarize the community's debt history. Information presented on this worksheet is used for calculating the financial indicators found on Worksheet #6. To establish community debt levels before and after construction of the proposed facilities, Worksheet #5 will draw information from a number of the following sources:

- annual financial reports;

1/ "Replacement" has been defined by The Clean Water Act in this instance to mean periodic replacement of equipment or other items necessary to keep the system operational for its expected useful life.

- reports submitted to State and other regulatory agencies;
- State agency publications; and
- official statements issued in conjunction with bond sales.

Worksheet #6: Evaluating the Community's Financial Condition. The assessment of a community's financial condition involves the calculation and analysis of 11 key financial indicators. The indicators have been chosen because of their importance in explaining the difference in creditworthiness between a community with a strong credit rating and one that has a weak credit rating. Worksheet #6 draws primarily from the data on other worksheets but also may require information from:

- annual financial reports;
- State agency publications;
- reports prepared by statewide organizations; and
- special studies prepared by the planning department and the assessor's office.

Working through the six worksheets will enable your community to evaluate its financial strengths and weaknesses. The transfer of information on a line-by-line basis from the worksheets to the Financial Information Sheet (Exhibit V) and the Supplemental Information Sheet (Exhibit VII) represents the final steps on the Exhibit III flow chart.

Notes on the Preparation of a Financial Capability Analysis

Financial analysis of proposed wastewater facilities requires the collection of financial information, calculation of several key indicators, and analysis of the results obtained through the process. Because local governments differ significantly in their financial practices, some difficulties may arise in conducting this analysis. This section identifies a number of potential problems and suggests ways for coping with them. Among the issues addressed are the following:

- obtaining the data;
- estimating needed data;
- knowing which number to use when there's a choice;
- recognizing the effect of different accounting methods;
- incorporating trend analysis into the financial capability assessment;
- taking account of inflation and economic change--sensitivity analysis;
- considering overlapping debt; and
- funding financial capability analysis.

While this list is not exhaustive, it addresses a number of common concerns in locating and understanding information sources. The remainder of this chapter is devoted to explaining these problems in more detail.

Obtaining the Data. Obtaining the data needed to complete the worksheets contained in this Guidebook may be complicated by a number of factors, such as:

- o the size of the community;
- o the type of information requested; and
- o the timing of the request.

Small governments may not have the staff or detailed financial reports needed for assembling the data used in the financial analysis. However, if the jurisdiction has had a recent bond sale, most of the data needed will be found in the official statement.

Other sources of data that may be used in completing the worksheets are supporting engineering reports, reports prepared for State regulatory agencies, and data submitted to the U.S. Census Bureau. If data availability proves to be a problem, there may be staff people at the State level who could provide technical assistance to the community in collecting the data.

Estimating Needed Data. If no other source is available, the community might find county-wide data useful to make estimates of its own finances. Per capita values for key county data elements — revenues, expenditures, etc. — are calculated, then multiplied by the community's population to produce a reasonable estimate of the particular data element for the community.

Although the analysis will only be as reliable as the estimates, this solution to the data availability problem is better than the alternative — no analysis. It is imperative that the assumptions and procedures used in estimating needed data be documented.

Knowing Which Number to Use When There's a Choice. Sometimes, judgment calls may be required to determine which number to use for a particular data element. A good example of this occurs in a resort community where seasonal fluctuations in population occur. In choosing the best number, several factors must be considered:

- o how will the seasonal population share the burden of paying for the proposed facilities? and

- o what impact does the increased population have on the local government's finances?

Depending on how the project will be financed, it might be appropriate to choose some number in between the alternative values. As with other estimates, the reason for choosing one number over another should be disclosed.

Recognizing the Effect of Different Accounting Methods. The basis of accounting used by a jurisdiction will have an effect on the financial capability analysis. This means that interjurisdictional comparisons are not perfect. While we recognize that a problem exists, there is no simple solution. The recommendation is to go forward with the analysis and decision-making process because it is unlikely that accounting differences alone will materially affect the results.

Incorporating Trend Analysis into the Financial Capability Assessment. The indicators found on the Supplemental Information Sheet may show signs of strength or weakness for the community. In evaluating the results of the analysis, it may be helpful to analyze the data going back five years to discern any trends in the community's financial condition. For instance, the indicator values may be registering weak in the current year, but the community may be in the midst of an upswing or improvement in its financial condition. This is an important consideration for the local official who must make a decision about the feasibility of a project.

Taking Account of Inflation and Economic Change. Ideally, our analysis would take a projection's approach and analyze the community's financial condition at a point in the future when the proposed facilities are operational by projecting income, population, total revenues, expenditures, debt outstanding, and other key data elements several — even many — years into the future. While this approach is preferred, it is not necessary. Instead, one can determine if a community's current financial situation would enable it to assume the costs of the proposed wastewater treatment facilities (expressed in today's prices) were the improvement made today, thus getting around the need to forecast key values.

It may be argued that this approach is too simplistic. This shortcoming can be overcome through a series of "sensitivity analyses" which assess how the key indicators would change under differing assumptions. For example, if there is concern about the impact of inflation on the cost of O,M&R, the cost estimates and other variables that are sensitive to inflationary pressures can be adjusted upward and the analysis can be repeated to determine how household burden changes. This approach is explained in more detail in Appendix D.

Considering Overlapping Debt. The proportionate share of tax-supported (general obligation) debt of local governments whose boundaries overlap the community is a critical component of the financial analysis. 2/ Data on the outstanding debt of such jurisdictions may not be readily available unless a recent official statement for a bond issue has been prepared. If it is necessary to estimate these data, the approach used in the following example is recommended.

Assume four jurisdictions overlap Community A (a county, school district, library district, and park district), and each has incurred debt. Steps A through E, which follow, establish the process for identifying the total overlapping debt to be borne by Community A's property owners. Exhibit IV gives a suggested

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2/ Overlapping debt is defined as the proportionate share of debts of local governmental units located wholly or in part within the boundaries of the reporting government which must be borne by persons or property within each governmental unit.

format for the analysis. The "other" row reminds the reader that there may be many more overlapping jurisdictions.

A. Identify each of Community A's overlapping jurisdictions that have incurred debt. (If not known, a list of these jurisdictions should be available through the State or the community assessor's office.)

B. Identify the total amount of tax-supported outstanding debt for each of the overlapping jurisdictions (less sinking funds).

C. Identify the percentage of each overlapping jurisdiction's outstanding debt charged to persons or property in Community A. The percentage is based on the estimated full market value of real property of the respective jurisdictions in Community A.

D. Multiply the total outstanding debt of each overlapping jurisdiction by the percentage identified for Community A (Column B x C).

E. Add the figures in Column D to arrive at total overlapping debt for Community A.

Funding Financial Capability Analysis. While the Guidebook is written for use by State and local staff persons, completion of the analysis may possibly involve a financial consultant or engineer. Doing the analysis may require some time and money. However, when measured against the total cost of a project, financial capability analysis is a sound investment because it provides an early warning if financing problems may crop up.

Communities that have an ongoing or completed Step 1 facilities plan or Step 2 design may amend their Step 1 or 2 grant to include these costs. Other communities can expect to pay the cost of this analysis along with other planning and design costs. The Clean Water Act, however, provides for an allowance to defray costs incurred prior to Step 3 and 2+3 applications. There is also the possibility for an advance of this allowance for small communities selected by the State.

EXHIBIT IV

OVERLAPPING DEBT IN COMMUNITY "A"

(A) Overlapping Jurisdictions	(B) Outstanding Debt (less Sinking Fund)	(C) % Chargeable to Community "A"	(D) Outstanding Debt Attributable to Community "A"
County	$10,500,000	25%	$ 2,625,000
School District	16,800,000	95%	15,960,000
Library District	3,000,000	100%	3,000,000
Park District	4,000,000	50%	2,000,000
Other			
		(E) Total Overlapping Debt	$23,585,000

CHAPTER III

FINANCIAL CAPABILITY ANALYSIS WORKSHEETS AND INSTRUCTIONS

Your community's financial capability concerns all parties that will pay a portion of the cost of the new wastewater facilities. Elected officials, finance officers, public works department heads, citizens, and lending institutions may view the issue from different perspectives. An adequate response must address the concerns of each of these groups.

In order to assist your community in evaluating its financial capability, this chapter provides:

- Six Worksheets, with line-by-line instruction, which cover roles and responsibilities, financing, facilities cost, household costs, community debt, and financial conditions. (Worksheets #1 - #4 are on pages 23-52 and Worksheets #5 and #6 are on pages 53-68.)
- Wastewater Facilities Financial Information Sheets (pages 19-21), a three page set which provides space to answer the basic questions asked in the "Policy on Financial and Management Capability." These three summary sheets can be completed by transferring the figures developed on Worksheets #1 - #4 to the appropriate lines on the Financial Information Sheet.
- A Supplemental Information Sheet (page 52) which covers the community's debt history and financial condition. The Supplemental Information Sheet (Exhibit VII) can be completed using the information developed on Worksheets #5 and #6.

Evaluating Results of the Analysis

As stated earlier, this *Guidebook* does not provide a fully developed credit analysis. But, it does embody a brief, reliable basis for evaluating your community's ability to assume new debt. The information provides assistance but not the answer to whether your community should undertake the proposed project. Guidance documents are not intended to replace local judgment.

Through the *Guidebook*, we have stressed the importance of evaluating the results, whether positive or negative, in light of your community's particular circumstances. For example, a community that is dependent on a single industry with an uncertain future must look beyond the predominantly positive indicators that may exist in the present.

The purpose of guidance is "to point in the right direction." The presence of strong indicators in the analysis should encourage your community to undertake the project as planned; weak indicators should caution against it,

with particular attention paid to reviewing less costly alternatives or restructuring the financing. Whatever choice your community makes, however, it will benefit from a systematic analysis of financial capability as the project progresses through planning, design, and construction.

EXHIBIT V

Wastewater Facilities Financial Information Sheet

Applicant

Name ______________________________

Address ______________________________

City ______________________ Zip __________

Contact ____________________

Telephone __________

What Is Proposed In The Facilities Plan?

- **The proposed facilities will be: (check more than one if applicable)** ☐ New ☐ An expansion ☐ An upgrade

- **If treatment facilities are proposed, do they feature low O + M Cost Technology such as ponds, trickling filters, overland flow? If yes, please identify.** ☐ Yes ☐ No

  ____

  ____

  ____

- **The facilities will serve:** ☐ Existing Population on Sewers ☐ Existing Area Served by On-Site Systems ☐ Existing Industries ☐ Anticipated Growth

  Indicate the approximate percentage of the plant's capacity that will be allocated to each. ______% ______% ______% ______%

- **Entities to be served:** ☐ County ☐ Municipality ☐ Sewer district ☐ Industry

- **Design population** ________ (Year ______________)

EXHIBIT V (Continued)

Wastewater Facilities Financial Information Sheet

What Roles And Responsibilities Will Local Governments Have?

Cooperative arrangements between various entities may be required to meet the management needs of wastewater treatment facilities.

				from line
• What agency will:	Own the facilities ______	Operate ______	Finance ______	(101)
• Will there be financial contributions by:	Other agencies ☐ Yes ☐ No	Industry ☐ Yes ☐ No		(103)
• Have participating agencies been asked to review:	Wastewater facilities plan ☐ Yes ☐ No	Population projections ☐ Yes ☐ No	Service areas boundaries ☐ Yes ☐ No	(105)
• Have agreements been sought between the operating agency and:	Participating agencies ☐ Yes ☐ No	Other agencies ☐ Yes ☐ No	Industry ☐ Yes ☐ No	(107)

How Much Will The Facilities Cost At Today's Prices?

The following figures are estimated costs for construction, operation, and maintenance of the proposed facilities. Dollar amounts are uninflated and reflect today's prices.

A. Construction costs estimate

from line

- Wastewater treatment plant ______ (201)
- Pump stations ______ (202)
- Interceptor sewers ______ (203)
- Collection sewers ______ (204)
- On-site systems ______ (205)
- Land acquisition ______ (206)
- Other ______ (207)
- Total construction costs ______ (208)

B. Estimated annual operation, maintenance, and replacement (O,M+R) costs for the proposed facilities

from line

- Labor ______ per year (209)
- Utilities ______ per year (210)
- Materials ______ per year (211)
- Outside services ______ per year (212)
- Misc. expenses ______ per year (213)
- Equipment replacement ______ per year (214)
- Total operation, maintenance and replacement costs ______ per year (215)

How Will The Facilities Be Financed?

A. Amount to be borrowed

from line

- Grantee share of construction costs ______ (309)
- Construction-related costs ______ (315)
- Grantee contributions ______ (320)
- Amount to be borrowed ______ (321)

B. Methods of financing the amount to be borrowed

Financing method	Amount borrowed	Interest rate	Term of maturity	Annual debt service payment	from line
General obligation bond					(322)
Revenue bond					(323)
Loan					(324)
Total		■	■		(325)

C. Total estimated annual wastewater facilities costs

from line

- Net existing O,M+R ______ (328)
- Existing annual debt service ______ (329)
- O,M+R for proposed facilities ______ (330)
- Debt service for proposed facilities ______ (331)
- Total estimated annual wastewater facilities costs ______ (332)

D. Sources of funding for total annual wastewater facilities costs

from line

- Sewer service charges ______ (333)
- Surcharge ______ (334)
- Special assessments and fees
  - — connection fee ______ (335)
  - — betterment assessments ______ (336)
  - — other ______ (337)
- Transfers from other funds ______ (338)
- Other ______ (339)
- Total funding ______ (340)

EXHIBIT V (Continued)

Wastewater Facilities Financial Information Sheet

What Are The Annual Costs Per Household?

	from line
• Total estimated annual wastewater facilities charges	(400)
• Nonresidential share of total annual charges	(401)
• Residential share of total annual charges	(402)
• Number of households	(403)
• Annual costs per household for	
—wastewater collection and treatment	(404)
—other	(405)

		from line
• Total annual costs per household	________	(406)

Certification of Financial Capability

Your community must certify that it has the capability to finance and manage the proposed facility.

The answers to the preceeding questions will provide useful information regarding the cost of the proposed facility, how it will be financed, and what this means in terms of costs to the typical household user. In order to evaluate effectively the true impact of the proposed treatment system, however, this information must be viewed within the overall context of the community's financial condition, financial resources, legal constraints, and local public policy.

Listed below are additional elements relating to a community's overall financial condition and its ability to pay the local costs of constructing and operating the treatment system. These factors should be considered before signing the financial and management capability certification.

- **reasonableness of population projections relative to historic trends (If new population growth is needed to help finance the proposed system.)**
- **total current outstanding indebtedness**
- **state finance laws and legal debt limits**
- **historical trends in your community's revenue sources (e.g., changes in taxable assessed property valuation with respect to population)**
- **current bond rating and its historical trend**

If your community would have difficulty financing the proposed project, it should consider alternative methods of financing to mitigate the adverse impacts, re-evaluate the project alternative and scope, or consider staging implementation to spread out financing to future users. When certifying your project, the community should be fully satisfied that both the users and the community as a whole have the capability to finance and manage the facility as proposed.

[redacted]

PURPOSE OF WORKSHEET #1

Worksheet #1 is intended to summarize the key management agencies, the roles they will be assigned, and the agreements that will be needed to provide for continued cooperation in the management of the facilities. Preliminary agreements reached during planning and design should be reviewed to complete this section.

Worksheet #1 should be completed whether you are a small town building your own facility or are part of a group of jurisdictions or agencies involved in a regional system. If you are proposing to construct a wastewater treatment facility designed to serve two or more public agencies or jurisdictions, you must provide an executed intermunicipal service agreement which shows, at a minimum, how the cost will be allocated among the parties, the formula by which costs are allocated, and the manner in which the cost allocation system will be administered. [1] This requirement may be waived by the Regional Administrator or the delegated State if you already have an agreement or ongoing service relationship and if the supplier agency is financially strong enough to continue the project if one or more of the customer agencies fails to participate (40 CFR 35.2107).

The intermunicipal service agreement serves as the legal, contractual basis for implementation of the wastewater treatment system, and guarantees future commitments. Although it will guard against reneging or unilateral actions by participants, it should also serve as a basis for a sound working relationship. Its institutional provisions should provide for a management framework, and should assign roles and responsibilities for management and operation of the system. In addition to its cost allocation information, the intermunicipal service agreement should also include:

1. delineation of sewer service areas of regional participants (include a map);

2. guarantee of future flow capacity and provision for annual

---

[1] The regional cost basis consists of facilities (including equipment, sewage treatment facilities, and interceptors, etc.) and services (administrative, managerial, legal, etc.) which are to be shared by two or more jurisdictions and are, therefore, eligible for regional cost allocation. An auditable cost accounting system is usually maintained by the supplier agency; it defines the regional cost basis and is included in service agreements. Exhibit VI provides the basis for identifying regional costs.

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EXHIBIT VI

BASIS FOR IDENTIFICATION OF REGIONAL COSTS

SYSTEM-WIDE CAPITAL COST BASIS

- **Proposed Regional Facilities:**
  Local share of capital cost of new components proposed in regional facilities plan.
- **Contributed Capital Facilities:**
  Value of existing facilities which are to be incorporated into regional system (based on an estimate of the replacement value, fair market value, or undepreciated value of the component).

  Estimated value of land on which existing contributed facilities are located (calculated at fair market value or other acceptable method).
- **Periodic Capital Requirements:**
  Additions or expansion of equipment or system components (not included in initial facilities plan), as required by regional use.

SYSTEM-WIDE OPERATIONS AND MAINTENANCE COST BASIS

- **Direct Costs for Regional System O & M:**
  Annual costs directly attributable to regional operation, maintenance and replacement identified in appropriate budget categories of the regional system operator.
- **Administrative Costs for Regional System:**
  Costs associated with management, administration, and overhead of the regional operator. For example, if a municipality operates the system, appropriate portions of administrative time must be identified in the municipal budget.

SOURCE: __Financial Planning for Wastewater Facilities: A Guide for Wyoming Local Officials__, Part 3, "Regional Wastewater Facilities: Cost Sharing, Financing, and Intergovernmental Relations," (Wyoming Department of Environmental Quality), page 16.

adjustment and sale of capacity between participants;

3. provision for cost-accounting system to assure auditability of regional operations and costs; and

4. establishment of an oversight or advisory committee to monitor financial aspects and policy-making on a continuing basis.

Instructions for Worksheet #1

Line 101 Identify the participating agencies that will own, operate, and/or finance the facilities. Participating agencies may include other municipalities, sewer districts, authorities, state or federal agencies (such as housing authorities) which will use the facilities. It does not include agencies which only provide financing, such as U.S. E.P.A., FmHA or HUD.

Line 102 Indicate if the participating agencies have any prior experience in performing their assigned roles.

Lines 103 - 104 Prior to the construction of the facilities, participating agencies should identify the type and amount of their contribution. Perhaps, for example, community "A" will provide $1,000,000 for the construction of the facility from its general fund and bond anticipation notes, while the sanitary district will provide the land. In addition, the community will be responsible for a percentage of the long-term debt.

Lines 105 - 106 Continued planning by technical, legal, and political representatives from participating agencies is necessary to maintain an understanding of each agency's role and financial responsibility. In addition, the planning of wastewater facilities is closely tied to land use planning and other independent activities of the participating jurisdictions. Plan reviews can aid in coordinating other related local activities. Check the items to be reviewed and describe the forum for review.

Lines 107 - 108 A number of intergovernmental agreements may be necessary to maintain a well organized management system. The agreements may cover ownership, financing, excess capacity allocation, operating cost allocations, sewer use ordinances, and liability and legal arrangements. Identify the participating agencies, the type of agreements involved, and existing agreements that have been drafted in the planning and design steps or are in effect.

WHAT ROLES AND RESPONSIBILITIES WILL LOCAL GOVERNMENTS HAVE? **Worksheet #1**

A. WHAT AGENCY WILL:	**Own the Facilities**	**Operate The Facilities**	**Finance The Facilities**	**(101)**
• **Does The Agency Have Experience In Performing The Function?**	☐ **Yes** ☐ **No**	☐ **Yes** ☐ **No**	☐ **Yes** ☐ **No**	**(102)**
B. WILL THERE BE A FINANCIAL CONTRIBUTION BY:	**Participating Agencies** ☐ **Yes** ☐ **No**	**Industry** ☐ **Yes** ☐ **No**		**(103)**
• **Amount Expected?**	**$**	**$**		**(104)**
C. WILL THE PARTICIPATING AGENCIES BE ASKED TO REVIEW:	**Wastewater Facilities Plan** ☐ **Yes** ☐ **No**	**Population Projections** ☐ **Yes** ☐ **No**	**Service Area Boundaries** ☐ **Yes** ☐ **No**	**(105)**
• **What Will Be The Forum For The Review (i.e, Meeting, Comments On Draft Documents)?**				**(106)**
D. WILL AGREEMENTS BE SOUGHT BETWEEN THE OPERATING AGENCY AND:	**Participating Agencies** ☐ **Yes** ☐ **No**	**Other Local Agencies** ☐ **Yes** ☐ **No**	**Industry** ☐ **Yes** ☐ **No**	**(107)**
• **Describe The Type Of Agreement Required (i.e., Ordinance Approval, Cost Allocation, Excess Capacity).**				**(108)**

FACILITY COST ESTIMATE

Instructions
for
Worksheet #2

PURPOSE OF WORKSHEET #2

A realistic assessment of financial capability depends on accurate estimates of construction, operation, maintenance, and replacement costs for the proposed wastewater facilities. These estimates provide the basis for determining both the amount of local financing required and the annual cost to users necessary to support the new facilities.

Worksheet #2 summarizes the construction costs (Section A) and operation, maintenance, and replacement costs for the facilities (Section B). Estimates should be developed for all of the costs that will be incurred, including management, overhead, outside services, and equipment replacement.

NOTE: The costs should be for the completed system including all its segments and phases. A complete wastewater treatment system consists of all the treatment works necessary to meet the requirements of Title III of the Act, and includes the following: (i) the transport of wastewater from individual homes or buildings to a plant or facility where treatment of the wastewater is accomplished; (ii) the treatment of wastewater to remove pollutants; and (iii) the ultimate disposal, including recycling or reuse, of the treated wastewater and residues which result from the treatment process.

Instructions for Section A

In Section A, provide a current estimate of the construction costs of the facilities by component. (Information is needed in this format because the Federal/State share for each component is different, and in Worksheet #3, this information is required to determine the grantee share.) Since some estimates may be several years old, updated values should be developed by the project engineer; otherwise, the community can apply EPA cost indices to the original estimates. EPA national average indices are provided in this section, but more accurate regional indices are available in the EPA documents referenced in the footnotes.

Line 201 Enter the construction costs for the wastewater treatment plant including sludge handling facilities. Update the engineering cost estimates to current dollars by using the EPA Small City Conventional Treatment Index. 2/ To use the index, multiply the engineer's cost by the ratio of the index value for the current year over the value for the year the engineer made the estimate. The national index values for 1973 through 1983 are:

EPA CONSTRUCTION COST INDEX FOR SMALL CITY CONVENTIONAL TREATMENT PLANTS

Year	Index
1973	93
1974	112
1975	110
1976	119
1977	128
1978	145
1979	158
1980	168
1981	180
1982	186
1983	196 (3rd Quarter)

For example, a 1976 cost estimate of $2,000,000 would be updated to 1983 as follows:

$$\$2{,}000{,}000\ (1976) \times \frac{196}{119}\ \frac{(1983)}{(1976)} = \$3{,}294{,}000\ (1983)$$

Line 202 - 204 To update the engineer's cost estimates for the pump stations, interceptor sewers, and collection sewers to current dollars, use the EPA Complete Urban Sewer System Index (CUSS). 3/

2/ See Appendix A, U.S. EPA, Construction Costs for Municipal Wastewater Treatment Plants: 1973-1982, EPA/430/9-83-004 (Washington, D.C.: Office of Water Program Operations June 1983).

3/ See Appendix A, U.S. EPA, Construction Costs for Municipal Wastewater Conveyance Systems: 1973-1979, EPA 430/9-81-003 (Washington, D.C.: Office of Water Program Operations (FRD-21) January 1981).

HOW MUCH WILL THE FACILITIES COST AT TODAY'S PRICES?

Worksheet #2
Section A

A. CONSTRUCTION COSTS ESTIMATE

System Component	Cost	Total Cost
• **Wastewater Treatment Plant**	______	
______	______	
______	______	
______	______	
______	______	
______	______	
Sludge Handling Facilities (Year to be built____)	______	______(201)
• **Pump Stations**		
______	______	
______	______	
______		
		______(202)
• **Interceptor Sewers**		
______	______	
______	______	
______		
		______(203)
• **Collection Sewers**		
______	______	
______	______	
______	______	
		______(204)
• **On-site And Other Innovative Alternative Systems**		
______	______	
______	______	
______	______	
		______(205)
• **Land Acquisition**		
______	______	
______	______	
______	______	
		______(206)
• **Other**		
Inspection and Construction Management	______	
______	______	
		______(207)
• **TOTAL CONSTRUCTION COSTS (201 + 202 + 203 + 204 + 205 + 206 + 207)**		______(208)

EPA COMPLETE URBAN SEWER SYSTEM COST INDEX

Year	Index	
1973	100	
1974	110	
1975	123	
1976	132	
1977	143	
1978	154	
1979	175	
1980	185	
1981	202	
1982	218	
1983	227	(3rd Quarter)

Updates are available from EPA. 4/

Line 205 Enter current estimates for innovative and alternative systems such as on-site, alternative conveyance, land for land application, and the I&A portions of the treatment works on line 205.

Line 206 Land acquisition costs, other than for a land application system, should be listed on line 206.

Line 207 Enter other costs associated with the construction project such as inspection and engineering costs. This does not include engineering costs for facilities planning or design.

Line 208 Enter the total construction costs on the worksheet (201 + 202 + 203 + 204 + 205 + 206 + 207).

Enter the construction cost estimates onto the Financial Information Sheet.

Instructions for Section B

In Section B, provide estimates of expected operation, maintenance, and replacement (O,M&R) costs for the proposed system. For each cost category (labor, utilities, etc.) identify, where applicable, the portion of the cost required by each system component.

4/ See "Construction Cost Indexes," EPA Office of Water Program Operations, Washington, D.C., or call EPA Regional and State Agency staffs.

This detailed format is modeled after the one found in an EPA publication and is intended to encourage a complete review of potential O,M&R costs. 5/ A complete review is particularly important since some new plants coming on-line have experienced O,M&R costs that are significantly higher than the original estimate.

Complete the matrix on Worksheet #2 Section B which consists of cost categories running down the left-hand column and system components listed across the top of the page. O,M&R cost estimates for:

- treatment plants;
- pump stations; and
- sewers

may have to be updated by the project engineer or by using EPA cost indices.

O,M&R for Wastewater Treatment Plants

Update the engineer's cost estimate for the wastewater plant to current dollars using the "EPA O,M&R Plant Index." The index is described in EPA's Operation and Maintenance Costs for Municipal Wastewater Facilities. 5/ National and regional values are also published by EPA. 6/

The national average values for 1974 through 1983 are:

EPA O,M&R PLANT INDEX

Year	Index	
1974	164	
1975	188	
1976	203	
1977	218	
1978	235	
1979	259	
1980	294	
1981	328	
1982	349	
1983	361	(3rd Quarter)

5/ U.S. EPA, Operation and Maintenance Costs for Municipal Wastewater Facilities, 430/9-81-004 (Washington, D.C.: Office of Water Program Operations, September 1981).

6/ Quarterly updates are published in "Index of Direct Costs for Operation, Maintenance, and Repair, Based on Composite 5MGD Plant," Office of Water Program Operations, Washington, D.C.

For example, a $250,000 1976 estimate of O,M&R costs for a plant would be updated to 1983 by multiplying the 1976 cost estimate by the ratio of the 1983 cost index to the 1976 index:

$$\$250{,}000\ (1976) \times \frac{361\ (1983)}{203\ (1976)} = \$444{,}600\ (1983)$$

O,M&R for Pump Stations

To update the pump station O,M&R costs, use the following EPA cost index values: 7/

PUMP STATION O,M&R INDEX

Year	Index
1974	1219
1975	1317
1976	1401
1977	1490
1978	1660
1979	1884
1980	1967
1981	2107
1982	2178
1983	2222 (3rd Quarter)

Convert past estimates to current dollars by multiplying the engineer's estimate by the ratio of the index values for the appropriate years, and use regional values where available.

O,M&R for Sewers

To update the sewer O,M&R costs, use the EPA O,M&R cost index for sewer lines. 7/ National values for 1974 to 1983 are:

7/ U.S. EPA, "Quarterly Indexes of Direct Cost for Operation, Maintenance and Repair of Raw Wastewater Pumping Stations and Gravity Sewers," Office of Water Program Operations, Washington, D.C.

SEWER O,M&R INDEX

Year	Index	
1974	1160	
1975	1249	
1976	1354	
1977	1461	
1978	1573	
1979	1745	
1980	1876	
1981	2091	
1982	2200	
1983	2298	(3rd Quarter)

Line 209 Having updated the O,M&R cost estimates, provide labor costs by system component including salaries, fringe benefits, and overtime. Also, estimate management and support services (indirect costs) needed for the labor category.

Lines 210 - 214 For each of the categories listed (utilities, materials, etc.), provide cost data broken down by system components (treatment plant, sludge handling disposal, etc.). In some cases, cost estimates may have to be reviewed with the engineering firm responsible for the original estimate to:

- expand management costs to reflect new institutional arrangements approved by local officials; and
- refine other costs based on more recent field data (e.g., new plants of similar design may show a need for more chemicals).

Line 215 Total operation, maintenance, and replacement costs is the sum of lines 209 + 210 + 211 + 212 + 213 + 214.

Enter the O,M&R values on the Financial Information Sheet (Exhibit V).

B. ESTIMATED ANNUAL OPERATION, MAINTENANCE, AND REPLACEMENT COSTS FOR THE PROPOSED FACILITIES

Worksheet # 2
Section B

Cost Categories	System Components Treatment Plant	Sludge Handling Disposal	Pump Stations	Interceptor Sewers	Collection Sewers	On-Site Systems	Total Costs	
• Labor (Salaries, Fringe Benefits, & Overtime)								
- Operations								
- Maintenance								
- Management								
- Support Services (Purchasing, Data Processing, Finance, Etc.)								
Total								(209)
• Utilities (Fuel & Power)								
- Electricity								
- Fuel Oil								
- Natural Gas								
- Automotive Fuel								
- Water Service								
- Other								
Total								(210)
• Materials & Supplies								
- Chemicals (itemize)								
- Maintenance								
- Automotive								
- Laboratory								
- Administrative Supplies								
- General								
Total								(211)
• Outside Services								
- Sludge Hauling or Disposal								
- Engineering Service								
- Data Processing								
- Other								
Total								(212)
• Miscellaneous Expenses								
- Insurance								
- Travel & Meals								
- Telephone								
- Training								
- Equipment Rental								
Total								(213)
• Equipment Replacement								
- Process Equipment (e.g., Pumps, Scrappers, Collectors, etc.)								
- Vehicles								
- Minor Miscellaneous								
- Other								
Total								(214)
• Total Operation, Maintenance, and Replacement Costs								(215)

FINANCING THE FACILITIES

Instructions
for
Worksheet #3

PURPOSE OF WORKSHEET #3

Worksheet #3 identifies the amount to be borrowed by your community and the methods of financing that amount. Total annual costs, which include operation, maintenance, and debt service for the new as well as any existing facilities, are then calculated and a summary of the sources of funds for paying the annual costs is provided.

Instructions for Section A

Section A outlines a method for determining the amount the grantee must borrow to pay for the construction and construction-related costs.

Lines 301-309 Turn back to Worksheet #2, lines 201-207, for the necessary construction cost data. Then give the anticipated amount of the EPA, State, and other agency shares of the construction costs for each component in the spaces provided. Contributing agencies might include grants from FmHA, HUD, and others.

The total grantee share (309) is calculated by subtracting the EPA, State, and other shares from the construction cost for each system component (301-307) and by adding together the results. You should check with your State to determine the level of Federal funding that you will likely receive and include this amount under the EPA share.

Line 310 This includes interest paid during or before construction due to:

- securing short term financing necessary to cover the delay in receiving grants and loans; or
- obtaining short term financing for the local share in anticipation of long-term financing in a year or two.

EXAMPLE: FINANCING GRANT SHARE

The financing of a construction project by EPA is on a cost reimbursement basis which means that the local government must be able to finance about 3 months worth of grant reimbursable project expenditures. As an example on how to estimate the cost of this, consider a project of which the total EPA grant share is $3,000,000 and which is to be constructed over a 24-month period. If we assume equal monthly payments over the 24 months, the average monthly payment would be $125,000 ($3,000,000/24). Thus, approximately $375,000 ($125,000 x 3)

Worksheet #3
Section A

HOW WILL THE FACILITIES BE FINANCED?

A. AMOUNT TO BE BORROWED FOR CONSTRUCTION AND CONSTRUCTION-RELATED COSTS

Grantee Share of Construction Costs

System Component	From Line	Construction Cost	EPA Share	State Share	Other Grants	Grantee Share	
Wastewater Treatment Plant	201	$____	$____	$____	$____	$____	(301)
Pump Stations	202	____	____	____	____	____	(302)
Interceptor Sewers	203	____	____	____	____	____	(303)
Collection Sewers	204	____	____	____	____	____	(304)
On-Site Systems	205	____	____	____	____	____	(305)
Land Acquisition	206	____	____	____	____	____	(306)
Other	207	____	____	____	____	____	(307)
Total		$____	$____	$____	$____		(308)

Total Grantee Share
(301 + 302 + 303 + 304 + 305 + 306 + 307) $____ (309)

will have to be financed for each and every quarter until the project is done in 2 years. The cost of this (at, say 9 percent) is :

$375,000 x .09/12 x 24 = $67,500

EXAMPLE: FINANCING THE LOCAL SHARE

In addition to financing the grant share, a community must finance its share of construction costs. If in the above example the local share were $500,000 (i.e., if the total cost of construction were $3,500,000), then the community must provide temporary financing for $500,000 until provision for long-term financing is made. Assuming that this amount is bonded at the end of the project and that the entire local share is financed on a short-term basis at the start of the project, the cost of financing would be:

$500,000 x .09/12 x 24 = $90,000

In the case of our example, the total of $67,500 and $90,000 ($157,500) would be entered on line 310.

Line 311 In some instances, a community may decide to provide loans from its general fund to its wastewater fund in order to finance early project expenditures with the understanding that the loan will be repayed at the time the project is permanently financed. Enter the total amount of such loans on line 311.

Line 312 This is the amount the community will have to pay for planning and design which is not covered by EPA and State contributions. If the community has not received a Step 1 or Step 2 grant, the EPA contribution is based on a table that specifies an allowable amount for planning and design cost depending on the total construction cost. The EPA contribution is the grant percentage (e.g., 75 or 55 percent) times the allowable amount. 8/

Line 313 Include legal, financial, and other fees associated with the sale of bonds, including:

- preparing the official statement;

8/ See Appendix B, 40 CFR Part 35, Subpart I. This describes the EPA Policy on Planning and Design Allowance.

- printing the bonds;
- advertising the bonds; and
- underwriter costs.

Another cost might be the funds borrowed by the community and then loaned to households to cover their cost of connecting to the lateral sewer.

The table below provides some historical data on issuance costs.

TOTAL MARKETING COST 9/

($5 to $10 Million Issues, Cost per $1,000)

Item	General Obligation	Revenue
Legal		
Local Attorney	$1.62	$3.75
Bond Counsel	2.00	2.96
Bond Election	.50	.45
Total Legal	$4.12	$7.16
Financial Advisor	1.44	2.63
Accountant	.97	1.05
Notice	.14	.12
Prospectus	.91	1.30
Printing	.23	.25
Rating	.53	.78
Signature	.06	.03
Other	.21	2.19
Total	$8.61	$15.51

Line 314 Other costs might include a one-time contribution to a reserve fund if required by bond or loan agreements.

Line 315 Total the entries from lines 310, 311, 312, 313, and 314.

9/ John E. Petersen and Wesley C. Hough, Creative Capital Financing for State and Local Governments (Chicago: Municipal Finance Officers Association, 1983), as reprinted from Governmental Finance, September, 1983. Used with permission.

Worksheet #3
Section A

Construction-Related Costs

Interest Paid on Loans and Notes $____ (310)

Repayments to Other Funds ____ (311)

Local Share of Planning and Design Costs ____ (312)

Legal, Financial and Other Fees for Issuance and Sale of Bonds ____ (313)

Other Costs (Identify)

____

____

____ (314)

Total Construction-Related Costs (310 + 311 + 312 + 313 + 314) $____ (315)

Grantee Contributions (Reduction in Amount to be Borrowed)

Accumulated Property Tax Revenue $____ (316)

Local Funds (Reserves) Available for the Project ____ (317)

Prepaid Connection Fees and Betterment Assessments ____ (318)

Other Sources of Front-End Funding (Identify)

____

____

________ (319)

Total Grantee Contributions (316 + 317 + 318 + 319) $____ (320)

Amount to be Borrowed
(309 + 315 - 320) $____ (321)

Lines 316 - 320 List all sources of front-end one-time financing the grantee will use to reduce the amount to be borrowed. These may include:

- property tax revenues;
- local funds (reserves) available for the project;
- prepaid connection fees and betterment assessments;[10] and
- other sources of front-end funding that reduce the amount to be borrowed, such as contributions from industry.

Line 321 Calculate the amount to be borrowed by adding the total grantee share (309) and total construction-related costs (315) and subtracting grantee contributions (320) that will be used to reduce the amount to be borrowed.

Return to the Financial Information Sheet (Exhibit V) and enter the required information.

Instructions for Section B

In Section B, the annual debt service (principal and interest) for each form of borrowing that may be used to finance local costs is added together to obtain a total annual debt service. This information is then carried forward to Section C, where the total wastewater treatment system costs are calculated.

Lines 322 - 324 For each financing method, identify the dollar amount borrowed, the number of years for which the funds are to be borrowed, and the estimated interest rate in the boxes on 322, 323, and 324.

For each of the methods of financing used by the grantee, find the annual debt service payment. For the sake of simplicity, assume the payments remain constant (level payments) over the life of the bonds or the loan. To calculate the annual debt service (principal and interest) for each method of financing used, multiply the appropriate capital recovery factor found in the Capital Recovery Table on the bottom of Worksheet #3-B by the amount borrowed. An example follows:

---

[10] Betterment assessments are defined as levies made against certain properties to defray the cost of improvements, which are defined as buildings and other attachments or annexations to land.

Worksheet #3
Section B

B. METHODS OF FINANCING THE AMOUNT TO BE BORROWED

Financing Method	Amount Borrowed	Interest Rate	Term of Maturity	Annual Debt Service Payment	
General Obligation Bond					(322)
Revenue Bond					(323)
Loan					(324)
Total					(325)

Capital Recovery Table

Length of Maturity in Years	Interest Rates in Percents								
	7	8	9	10	11	12	13	14	15
10	.142	.149	.156	.163	.170	.177	.184	.192	.199
15	.110	.117	.124	.131	.139	.147	.155	.163	.171
20	.094	.102	.110	.117	.126	.134	.142	.151	.160
25	.086	.094	.102	.110	.119	.128	.136	.145	.155
30	.081	.089	.097	.106	.115	.124	.133	.143	.152
35	.077	.086	.095	.104	.113	.122	.132	.141	.151
40	.075	.084	.093	.102	.112	.121	.131	.141	.151

Amount to be borrowed	$5,000,000
Interest Rate	12%
Maturity	20 years
Capital Recovery Factor	.134
Annual Debt Service Payment (.134 x 5,000,000)	$ 670,000

Line 325 Add the annual debt service payments for each method of financing to determine the annual debt service for the proposed facilities.

Upon completion of this section, enter the required information on the Financial Information Sheet (Exhibit V).

Instructions For Section C

Section C calculates the total annual wastewater treatment system costs.

Lines 326 - 329 These four lines are for information about the existing facility's annual costs. If the proposed project represents a new plant, please go to line 330. Otherwise, enter information on the annual operations, maintenance, and replacement (O,M&R) costs for the existing facility (326), and the annual debt service being paid for the existing facility (329). (Note: Some existing O,M&R costs may be discontinued as a result of the new project (327) or may be included in the new facility's costs and should be subtracted from existing costs (326) to determine the net annual O,M&R costs (328).)

Lines 330 and 331 Cost estimates for the proposed facilities can be found on line 215 of Worksheet #2, and line 325 of this worksheet. If annual reserves are required by bond indentures, loan agreements or state law, add the amount to the annual debt service and enter on line 331.

Line 332 Add lines 328, 329, 330, and 331 to find the total annual wastewater treatment system costs. This is the amount the community must raise annually from all local sources to own and operate the system.

The information from this section should now be transferred onto the Financial Information Sheet (Exhibit V).

Worksheet #3
Section C

C. TOTAL ESTIMATED ANNUAL LOCAL WASTEWATER TREATMENT SYSTEM COSTS

- **Existing Annual Operation, Maintenance, and Replacement Costs** $________________ (326)
- **Discontinued Annual Operation Maintenance, and Replacement Costs to be Discontinued as a Result of Proposed Project** $________________ (327)
- **Net Existing Annual Operation, Maintenance, and Replacement Costs (Net) (326-327)** $________________ (328)
- **Existing Annual Debt Service** $________________ (329)
- **Estimated Annual Operation, Maintenance, and Replacement Costs of Proposed Facilities (215)** $________________ (330)
- **Estimated Annual Debt Service and Other Required Expenses for Proposed Facilities (325)** $________________ (331)
- **Total Estimated Annual Local Wastewater Treatment System Costs (328 + 329 + 330 + 331)** $________________ (332]

Worksheet #3
Section D

D. SOURCES OF FUNDING FOR TOTAL ANNUAL WASTEWATER TREATMENT AND FACILITIES COSTS

- **Sewer Service Charges** $__________ (333)
- **Surcharge on Sewer Service Charges** __________ (334)
- **Special Assessments and Fees**
  - **Connection Fees** **($_____ per connection, number of connections_____)** __________ (335)
  - **Betterment Assessments** **($_____ per_____, number_____)** __________ (336)
  - **Other (Describe)** __________ __________ __________ (337)
- **Transfers From Other Funds (Identify)**__________ __________ __________ __________ (338)
- **Other (Identify)** __________ __________ __________ __________ __________ (339)
- **Total Funding** $__________ (340)

Instructions for Section D

Section D identifies the sources of funding for the total annual wastewater treatment system costs that were calculated in the previous section. A list of potential revenue sources has been provided in this section, including both operating and non-operating revenues. In some situations, only one source may be applicable.

Worksheet #3D is provided to assist local officials in thinking about setting up a cost recovery system by displaying a range of possible revenue sources that might be used in financing a publicly owned treatment works. In addition, it provides an early opportunity to determine whether existing estimates of revenue sources — particularly sewer service charges — are unrealistically low.

Line 333 Include here the most up-to-date estimated revenues from all sewer service charges paid by system users (both residential and non-residential). The engineer is likely to have estimated these on a cost per gallon or similar basis (or they may be provided in the facility plan).

Line 334 Include here estimated revenues from a surcharge on sewer service charges.

Lines 335 - 337 Some sources of non-operating revenues are the funds derived from connection fees, betterment assessments, front-foot assessments, and other fees to recover capital costs. In completing this section, the applicant is cautioned to consider here only those funds that are available to pay annual costs. Special assessments and fees that are prepaid by community residents and are used to reduce the amount of borrowing should not be included here because they are not available to pay annual costs of the facility.

Line 338 In some instances, there may be transfers from other funds such as property tax revenues from the community's general fund. These sources should be entered here.

Line 339 Other sources of funding should be listed here. Examples include interest on investments and revenues from the sale of by-products and any annual payments made by households who have accepted a loan from the community.

Line 340 Add lines 333, 334, 335, 336, 337, 338, and 339 to calculate total funding. If line 340 is less than line 332, then the total annual costs are not covered by the funding sources and the system will not be self-supporting. In such cases the applicant should review the revenue program and plan to make adjustments so that the system will pay for itself.

Note: A major discrepancy between total funding (line 340) and total cost (line 332) should be a matter of serious concern to all parties since this could be considered an early warning sign of a financially troubled project. If total funding is significantly less than total costs, you should:

1) **Check your arithmetic to eliminate errors. If the shortfall in revenues is not an arithmetic error, either revenues must be increased or costs (capital and/or operating) must be decreased in order to balance inflows and outflows.**

2) **Check your source for estimated sewer service charges (line 334). For many jurisdictions the only discretionary revenue source will be sewer service charges. Thus, for such jurisdictions major discrepancies between cost and revenue can only be made up by raising sewer service charges.**

DETERMINING THE ANNUAL COSTS PER HOUSEHOLD

PURPOSE OF WORKSHEET #4

The purpose of this worksheet is to determine the annual costs per household for the community's wastewater treatment facilities.

The determination of annual wastewater treatment system costs for individual households provides a basis for assessing the financial impact of the project on residential users in the community. In reviewing the project costs, it may be determined that the proposed facilities are too expensive for the affected community's residents.

The judgement as to whether the annual household cost is too high is essentially a local one that must be answered by the community and the State. The purpose of this section is to calculate the real total average annual cost to the residential users of the system so that an informed decision can be made. EPA has provided guidance in this matter to the states which may be of some help to your community. See Guidance for Implementing the Financial and Management Capability Policy. 11/

Instructions for Worksheet #4

Line 400 Enter the total estimated local annual wastewater treatment system costs from Worksheet 3, line 332.

Line 401 Enter the nonresidential share of total estimated annual wastewater treatment system costs here. The nonresidential share includes:

- the annual industrial share; and
- any annual income which will not be paid directly or indirectly by the residential users, such as the sale of by-products and interest income.

Line 402 Subtract line 401 from 400 to find the residential share of the total estimated annual wastewater treatment and facilities costs.

Line 403 Identify the current number of households to be served by the wastewater facilities. You may wish to perform this

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11/ U.S.E.P.A. "Transmittal of Guidance for Implementing the Financial and Management Capability Policy," OWPO '84-13, December 20, 1983 memo from Henry L. Longest II, Director, Office of Water Program Operations to Water Management Division Directors Regions I - X.

WHAT ARE THE ANNUAL COSTS PER HOUSEHOLD?

• Total Estimated Annual Wastewater Treatment System Costs (332)	$ ________	(400)
• Nonresidential Share of Total Annual Wastewater Treatment System Costs	$ ________	(401)
• Residential Share of Total Annual Wastewater Treatment System Costs (400 − 401)	$ ________	(402)
• Number of Households	________	(403)
• Annual Wastewater Treatment System Cost Per Household (402 ÷ 401)	$ ________	(404)
• Other Annual Costs Per Household (Identify) ________________ ________________ ________________	$ ________	(405)
• Total Annual Costs Per Household (404 + 405)	$ ________	(406)

analysis using the number of households that will exist when the facility is operational.

Line 404 Divide the residential share of the annual wastewater treatment and facilities costs (402) by the number of households (403) to calculate the annual wastewater treatment and facilities costs per household.

Line 405 Other annual costs per household are important to include in this analysis of household burden. Examples include service line installation costs, connection fees, and assessments. Include here costs that are paid by the customer to private enterprises (such as a plumber) as well as to the agency operating the system. Some difficulty may be encountered in entering these amounts into the analysis for the following reasons:

- Not all households in the community will necessarily be affected. (For example, connection fees may only be required from households that are to join the system for first time because of an expansion of the facilities);
- Fees and assessments may be variable based on such factors as the length of a homeowner's lot; and
- Frequently the "other" cost recovered from households are one-time fees or assessments and are not repaid over a period of years.

Given these problems, some suggestions for proceeding with the analysis of annual costs per household follow:

- Consider the impact on a new user of the system, including all potential fees that a homeowner may be required to pay in order to receive wastewater treatment services. Any variable fees should be estimated at their maximum amounts.
- Express the one-time fees and assessments as annualized costs based on the assumption that the new user will not be able to pay these costs without borrowing. To do this, choose an interest rate and a payback period and find the appropriate capital recovery factor (See Table on Worksheet #3B), then multiply the amount of the one-time fee and/or assessment by the capital recovery factor. As an example, consider the following:

Connection Fee	$2,000
Interest Rate	10%
Length of Loan	20 years
Capital Recovery Factor	.117
Annual Cost ($2,000 x .117)	$234

The amount (in this case, $234) should be entered on line 405.

- If you have an existing sewer system and will be adding new users who will pay additional charges to join the system, it may be desirable to complete Worksheet #4 twice — once for existing users and once for new users. The cost of collector sewers are usually borne by only those users who abut the new sewer lines or who may potentially benefit from connecting to them. For communities who are presently sewered but are planning to build new sewers for new users, the cost for these sewers should not be divided among all household costs in the community. For these situations, the annual household costs should be calculated in two steps using Worksheet #4 twice. The first calculation would include the system-wide costs to be shared by all customers (treatment facilities construction and O,M&R costs). Second, the additional costs to be shared only by newly sewered users would be calculated to yield a total for the new users.

EXAMPLE

A community is upgrading an existing treatment system and adding new sewers for a portion of the community. The total annual residential share of the treatment facilities costs (debt service plus O,M&R) is $750,000 per year to be shared among all households served. There are 5,000 households to be served by the system with 1,000 of these to be connected to new sewers. The total annual debt service and O,M&R cost of the new collection system is $75,000, and each newly connected household will pay a connection fee of $2,000.

Step 1: Calculate annual costs per household for the treatment facilities, to be shared by all users:

Line 402: Residential share of total system-wide annual costs:	$750,000
Line 403: Number of households to be served:	5,000
Line 404: Annual system-wide cost per household (402/403):	$150
Line 405: Other annual household costs:	0
Line 406: Total annual system-wide cost per household:	$150

Step 2: Calculate annual household cost for households to be newly sewered:

Line 402: Residential share of annual costs for new sewers:	$75,000
Line 403: Number of households on new sewers:	1,000
Line 404: Annual cost per household for new sewers:	$75
System-wide annual cost from Step 1:	$150
Line 405: Other household costs (annualized connection fee calculated in above example):	$234
Line 406: Total annual cost per household for those on new sewers:	$459

The information required to answer the questions posed by the Financial Management Capability Policy has now been developed and can be transferred to the Financial Information Sheet (Exhibit V). This information pertains to the proposed wastewater system: what it will cost the community and the users, and how it will be financed and maintained. A community may wish to consider additional information relating to its financial situation prior to certifying that it has the necessary capability. Worksheets #5 and #6 and the Supplemental Information Sheet (Exhibit VII) focus on community fiscal information and provide a means to develop a number of financial indicators by which financial capability might be further analyzed.

EXHIBIT VII

Supplemental Information Sheet

This Supplemental Information Sheet may be used by your community as the basis for an in-depth evaluation of financial condition. It outlines a method for assessing a community's relative financial strengths and weaknesses.

What Is The Community's Debt History?

A. Bond Ratings — from line

- **Community's most recent general obligation bond rating** ______ Rating ______ Date of rating (500)
- **Community's most recent revenue bond rating** ______ Rating ______ Date of rating (501)

B. Outstanding Debt

- **General Obligation Bonds** ______ (502)
- **Revenue Bonds** ______ (503)
- **Gross Direct Debt** ______ (504)
- **Direct Net Debt** ______ (505)
- **Overlapping Net Debt** ______ (506)
- **Overall Net Debt** ______ (507)
- **Other Debt** ______ (508)
- **New Debt for Other Capital Improvements** ______ (509)

C. Debt Repayment Schedule

- **Total Overall Net Debt Due (including new issue) within next 5 years** ______ (515)

D. Debt Limits

- **Briefly describe any limits on debt that apply to your community.** ______ (516)
- **What % of your debt limit is currently used?** ______% (517)

What Is The Community's Financial Condition?

Indicator	Indicator value	Indicator rating: Weak		Average		Strong		from line
1. Annual rate of change in population	____%	Below −1%	____	−1% to 1%	____	Above 1%	____	(602)
2. Current surplus as a % of total current expenditures	____%	Below 0%	____	0% to 5%	____	Above 5%	____	(610)
3. Real property tax collection rate	____%	Below 96%	____	96% to 98%	____	Above 98%	____	(611)
4. Property tax revenues as a % of full market value of real property	____%	Above 4%	____	2% to 4%	____	Below 2%	____	(615)
5. Overall net debt as a % of full market value of real property	____%	Above 5%	____	3% to 5%	____	Below 3%	____	(616)
6. Overall net debt outstanding as a % of personal income	____%	Above 12%	____	4% to 12%	____	Below 4%	____	(619)
7. Direct net debt per capita	$____	Above $750	____	$250 to $750	____	Below $250	____	(620)
8. Overall net debt per capita	$____	Above $1,000	____	$450 to $1,000	____	Below $450	____	(621)
9. % direct net debt outstanding due within next 5 years	____%	Below 10%	____	10% to 30%	____	Above 30%	____	(622)
10. Operating ratio	____%	Below 100%	____	100% to 120%	____	Above 120%	____	(630)
11. Coverage ratio	____%	Below 120%	____	120% to 170%	____	Above 170%	____	(631)

ASSESSING THE COMMUNITY'S DEBT POSITION

PURPOSE OF WORKSHEET #5

The purpose of this worksheet is to profile and summarize the community's debt position, including the proposed project. Information presented on this worksheet is used for calculating the financial indicators found on Worksheet #6.

GENERAL INSTRUCTIONS

This Worksheet is divided into four sections, each providing background information related to the community's debt history. The sections cover bond ratings, outstanding debt, debt repayment, and debt limits.

Instructions for Section A

Line 500 Give the community's most recent general obligation bond rating and the date of the rating.

Line 501 Give the community's (or its wastewater utility's) most recent revenue bond rating and the date of the rating.

Enter this information on the Supplemental Information Sheet (Exhibit VII). If the community has never had a rating, enter N/A as not applicable.

Instructions for Section B

Information on the community's debt outstanding is presented in this section. In calculating the amount of debt outstanding, include here only the principal. Do not include any interest.

Line 502 Give the amount of general obligation debt outstanding, and any new debt for the proposed project. General obligation bonds are those for whose payment the full faith and credit of the issuer has been pledged and are payable most commonly from real property taxes and other general revenues. Include here any general obligation bonds secured by earmarked revenues that flow outside the general fund (double-barreled bonds).

Line 503 Give the amount of revenue bonds outstanding, including any new debt for the proposed facilities.

Line 504 Gross direct debt is the total amount of general obligation and revenue bonds outstanding. (Lines 502 plus 503).

Line 505 Direct net debt is gross direct debt (line 504) less debt that is self-supporting (revenue bonds) and double-barreled bonds.

Worksheet # 5
Sections A and B

WHAT IS THE COMMUNITY'S DEBT HISTORY?

A. BOND RATINGS

- **Community's Most Recent General Obligation Bond Rating** ________ Rating ________ Date of Rating **(500)**
- **Community's Most Recent Revenue Bond Rating** ________ Rating ________ Date of Rating **(501)**

B. DEBT

	Outstanding +	This Project =	Total	
• General Obligation Bonds	________	________	________	**(502)**
• Revenue Bonds	________	________	________	**(503)**
• Gross Direct Debt			________	**(504)**
• Direct Net Debt	________	________	________	**(505)**
• Overlapping Net Debt	________	________		**(506)**
• Overall Net Debt			________	**(507)**
• Other Debt	________		________	**(508)**
• New Debt for Other Capital Improvements			________	**(509)**

Line 506 Overlapping net debt is the community's proportionate share of tax-supported debt of local government units located wholly or in part within the limits of a community which must be borne by property or persons in that community's boundaries. (Chapter II provides guidance on determining a community's overlapping debt.)

Line 507 Overall net debt is the sum of direct net debt and overlapping debt. (Lines 505 and 506)

Line 508 Three important debt "obligations" that should be considered in evaluating a community's debt load are outstanding leases, unfunded pension liabilities, and notes having a maturity greater than one year. Insert here the amount of other debt the community has outstanding.

Line 509 Give an estimate of the amount of future planned debt for other planned capital improvements your community is contemplating. Include any outstanding bond anticipation notes (BANs) here.

Return to the Supplemental Information Sheet (Exhibit VII) to record the required data.

Instructions for Section C

Section C is used to show how restrictive future debt repayment requirements will be for the community. A low proportion of outstanding debt coming due during the next five years is an indication that a large proportion of future revenues are already committed for debt service, and thus, that future financial flexibility will be limited. This does not mean that a community should only borrow funds with short payback periods (such as 5 years) since that could indicate debt service requirements during the payback period that might be greater than can be afforded. In general, the borrowing period should roughly match the lifetime of the facility that the debt is used to finance.

Lines 510 - 514 Give the amount of direct net debt due in each of the next five years. This should include debt for this project. This can be obtained from line 325.

Line 515 Add lines 510, 511, 512, 513, and 514 to calculate total direct net debt due within the next five years.

Transfer the data on to the Supplemental Information Sheet (Exhibit VII).

Instructions for Section D

Line 516 Briefly describe any constitutional, statutory, or charter limits on debt (other than a referendum requirement) that apply to your community, including:

Worksheet #5
Sections C and D

C. DEBT REPAYMENT SCHEDULE

- **Principal Debt Repayment Schedule (Including Proposed Project) For Direct Net Debt Within Next 5 Years**

	Existing Debt	This Project	Total	
Year 1	$__________	$__________	$__________	(510)
Year 2	__________	__________	__________	(511)
Year 3	__________	__________	__________	(512)
Year 4	__________	__________	__________	(513)
Year 5	__________	__________	__________	(514)

- **Total Direct Net Debt Due (including proposed project) Within Next 5 Years (510 + 511 + 512 + 513 + 514)** $__________ **(515)**

D. DEBT LIMITS

- **Briefly describe any limitations on debt that apply to your community.** **(516)**

____

____

____

____

____

- **What percentage of your debt limit will be used?** __________% **(517)**

- a dollar ceiling on the amount that may be outstanding at any one time or the total amount that may be issued;
- a ceiling on the amount that may be outstanding at the time of incurrence, expressed as a percentage of the assessed valuation of taxable property or a percentage of regularly recurring revenues;
- the ratio of past revenues to future debt service (for revenue bonds); and
- any limitation on the authority to levy taxes for debt service.

The maximum amount of debt that a governmental unit may incur typically is fixed on direct gross or direct net debt.

Line 517 Calculate (or estimate) the percentage of the debt limit that will be used including current debt plus debt generated by the proposed project. Since there are a number of possible limitations that may apply, no single formula is available.

Summarize and record the information from this section of Worksheet #5 on the Supplemental Information Sheet (Exhibit VII).

Instructions
for
Worksheet #6

EVALUATING THE COMMUNITY'S FINANCIAL CONDITION

PURPOSE OF WORKSHEET #6

The assessment of a community's financial condition involves the calculation and analysis of 11 key financial indicators. These indicators have been selected because of their importance in explaining the difference in creditworthiness between a community with a strong credit rating and one with a weak credit rating. However, in evaluating the indicator values for an individual community, it may be necessary to draw other relevant information into the analysis, use judgment, and probe for more facts and explanations. For example, information concerning the closing of the community's only industry is not captured in the indicators' analysis, but such an event could have a very serious effect on the community's financial condition.

Worksheet #6 is to be completed using the proposed project where applicable. Indicators 1, 2 and 3 should be calculated based on current information. If the project is to be funded in part through the use of property taxes, then indicator 4 should include the proposed project. If general obligation bonds will be used to finance the project, then indicators 5 through 9 should include the proposed project. Indicators 10 and 11 should include the proposed project if revenue bonds are planned to be used to finance the project.

GENERAL INSTRUCTIONS

Worksheet #6 provides instructions for calculating the key indicators of financial health. After the indicator values and ratios are calculated, enter them on the Supplemental Information Sheet and determine whether the indicators register a weak, average, or strong rating based on the benchmarks given on the Supplemental Information Sheet.

Instructions for Indicator 1 -- Population Growth

Lines 600 - 602 The annual rate of change in population tells the analyst whether or not a community is growing strongly, remaining stable, or declining. This information is relevant to the analysis of financial capability because the economic base -- which typically is dependent on personal income, retail sales, and the market value of real property -- rises and falls with changes in population.

To calculate this rate, subtract the community's population five years ago (600) from the current population (601). Divide this number by five and divide the result by the population five years ago (600), then multiply the result by 100. For example,

Preceding page blank

a. Population 5 years ago 27,000
b. Current population 35,000
c. "b" - "a" = 8,000
d. (8,000 / 5) = 1,600
e. (1,600 / 27,000) x 100 = 5.9%

If the population five years ago is unavailable, pick some other period between 2 and 10 years. Conduct the analysis as described above but change the denominator (5) in step "d" accordingly.

Instructions for Indicator 2 -- Operating Surplus (or Deficit)

Lines 603 - 605 Enter the community's general fund revenues for the most recently completed fiscal year for the categories specified in lines 603 and 604. (Treat as revenues only current receipts that flow from tax sources, charges, and intergovernmental payments. Do not include the receipts of borrowing.) Add these two categories together to obtain total current revenues (605).

Lines 606 - 608 The community's general fund expenditures for the most recently completed fiscal year are divided among operating expenditures and debt service payments. Put the amounts in lines 606 and 607, then calculate the total and enter it on line 608.

Line 609 The current operating surplus (or deficit) is the difference between total current revenues and total current expenditures (605-608).

Line 610 Indicator 2 is found by dividing the surplus (or deficit) by total current expenditures and multiplying by 100. A positive percentage is a healthy sign whereas a negative percentage should be taken as a financial warning signal. The analysis of a community's surplus (or deficit) should ideally be conducted over a multiyear period to determine if the surplus is getting smaller or the deficit is becoming larger.

Instructions for Indicator 3 -- Property Tax Collection Rate

Line 611 The real property tax collection rate is an indicator of the efficiency of the tax collection system. It is calculated as follows:

$$\frac{\text{Property taxes collected during most recently completed tax year}}{\text{Property taxes levied during most recently completed tax year}} \times 100$$

Worksheet #6
Indicators 1-4

WHAT IS THE COMMUNITY'S FINANCIAL CONDITION?

INDICATOR 1

- **Community Population 5 Years Ago** ________ (600)
- **Current Year Population** ________ (601)
- **Annual Rate of Change in Population** ________% (602)

INDICATOR 2

- **Property Taxes** $________ (603)
- **Other Revenues** $________ (604)
- **Total Current Revenues (19__)** $________ (605)
- **Operating Expenditures** $________ (606)
- **Debt Service Payments** $________ (607)
- **Total Current Expenditures (19__)** $________ (608)
- **Current Surplus (Deficit) (605-608)** $________ (609)
- **Current Operating Surplus (Deficit) As A Percentage of Total Current Expenditures (609 ÷ 608 X 100)** ________% (610)

INDICATOR 3

- **Real Property Tax Collection Rate (Most Recent Tax Year Available 19__)** ________% (611)

INDICATOR 4

- **Assessed Value of Real Property** $________ (612)
- **Current Assessment Ratio** ________% (613)
- **Full Market Value of Real Property** $________ (614)
- **Property Tax Revenues As A Percentage of Full Market Value of Real Property (603 ÷ 614 X 100)** ________% (615)

Generally, low collection ratios are evidence of tax delinquency.

Instructions for Indicator 4 -- Reliance on Property Tax Revenues

Lines 612 - 615 Indicator 4 identifies if a community is taxing real property extensively and gives some indication of the potential for future revenue growth from this source. Property tax revenues are expressed as a percentage of the full market value of real property.

The first step in calculating this indicator is to enter the assessed value of real property on 612. The current assessment ratio is needed to calculate the full market value of real property since most properties are assessed at some percent of market value less than 100 percent. This is accomplished by dividing the assessed value of real property by the assessment ratio. For example,

Assessed value of real property	$100,000,000
Assessment ratio (50 percent)	.50
Full market value of real property (100,000,000/.50)	$200,000,000

To calculate Indicator 4 (line 614), divide the most current year's property tax revenues (603) plus any increase in property taxes that will be required to finance the project by the current full market value of real property and multiply by 100.

$$\frac{\text{Current Year's Property Tax Revenues}}{\text{Full Market Value of Real Property}} \times 100$$

Two points should be noted regarding this indicator:

o) a high ratio can be an important indicator of fiscal pressure in the community because sustained growth in property tax revenues will not be feasible -- unless property values are increasing proportionately; and

o) as is the case with several of the other indicators discussed above, the analyst may find it useful to track the value of the indicator for the five year period preceding the current year.

Worksheet # 6
Indicators 5-9

INDICATOR 5

- Overall Net Debt as a Percentage of Full Market Value of Real Property (507 ÷ 614 X 100) ______% (616)

INDICATOR 6

- Per Capita Income $______ (617)
- Personal Income (617 X 601) $______ (618)
- Overall Net Debt as a Percentage of Personal Income (507 ÷ 618 X 100) ______% (619)

INDICATOR 7

- Direct Net Debt Outstanding Per Capita (505 ÷ 601) $______ (620)

INDICATOR 8

- Overall Net Debt Outstanding Per Capita (507 ÷ 601) $______ (621)

INDICATOR 9

- Direct Net Debt Due Within 5 Years as a Percentage of Direct Net Debt Due (515 ÷ 505 X 100) ______% (622)

Instructions for Indicators 5-9 -- Debt Capacity

This section of the worksheet organizes information on the community's outstanding debt in order to calculate several important indicators covering the debt capacity of the community. In supplying information about a community's debt history, the analyst should include any new debt for the proposed facilities.

Line 616 For Indicator 5, divide total overall net debt (507) by the full market value of real property (614) then multiply by 100. (For an example of the calculation of overlapping debt, see Chapter II.) Indicator 5 compares the amount of tax-supported debt owed by a community with the full market value of real property in the community, which is a gauge of the community's ability to support additional borrowing.

Lines 617 and 618 Another measure of a community's wealth is personal income which can also be used as a yardstick to judge the community's ability to repay debt. If total personal income is not known, find the per capita income in the community and multiply it by population (617 x 601). If personal income is not available for the current year, update the most recent number using the following formula:

a. Obtain the consumer price index (CPI) for the year for which income information is available. 13/ ________

b. Obtain the CPI for the most recent year. ________

c. Divide "b" by "a" to calculate a CPI ratio. ________

d. Inflate the per capita income figure by multiplying that amount by the CPI ratio found in "c." ________ $________

13/ Consumer Price Index

YEAR	CPI	YEAR	CPI	YEAR	CPI
1969	109.8	1974	147.7	1979	217.4
1970	116.3	1975	161.2	1980	246.8
1971	121.3	1976	170.5	1981	272.4
1972	123.3	1977	181.5	1982	289.1
1973	133.1	1978	195.4	1983	298.4

Line 619 In Indicator 6, overall net debt is compared with personal income. Divide overall net debt (507) by personal income (618) and multiply by 100.

Line 620 For Indicator 7, divide direct net debt outstanding (505) by the current population (601). The amount is another indicator of the burden on the community of the general obligation debt issued by the community.

Line 621 To calculate Indicator 8, divide overall net debt outstanding (507) by the current population (601). The amount is an indicator of the burden on the community and its overlapping jurisdictions.

Line 622 The purpose of Indicator 9 is to compare the percentage of direct net debt due within five years to total direct net debt outstanding. Divide direct net debt due within 5 years (515) by direct net debt outstanding (505) and multiply by 100. Credit analysis teaches us that an especially long payback should be viewed with caution because the repayment of debt should correspond to the useful life of the facility. This does not mean that a community should only borrow funds with short payback periods (such as 5 years), since that could indicate that debt service requirements during the payback period might be greater than the community can afford.

Instructions for Indicators 10 and 11 -- Analysis of Sewer Enterprise

The indicators presented up to this point are particularly useful in assessing the financial capability of the community if it pays for its facilities with general obligation bonds. The next part of the worksheet introduces two indicators which provide the analyst with information upon which to make an informed judgment about projects funded with revenue bonds. Unlike the analysis of general obligation bonds, the financial condition of the sewer "enterprise" fund is of prime importance in the study of revenue bonds. 14/ Indicators 10 and 11 should be calculated for the first operational year of the proposed system using anticipated revenues and expenses.

Lines 623 and 624 Enter the expected operating revenues and nonoperating revenues (grants, interest, and connection fees) for the sewer funds for the current year and the first year the system is operational.

Line 625 Add lines 623 and 624.

14/ An enterprise fund is established to account for sewer operations that are financed and operated in a manner similar to a private business enterprise -- where the intent of the governing body is that the costs of providing the service be financed or recovered primarily through user charges.

INDICATORS 10 AND 11

- **Sewer Fund Revenues (First Year Operational)**

Operating Revenues $ ________ (623)

Non Operating Revenues (Excluding Revenue From Borrowing) $ ________ (624)

Total Revenues (623 + 624) $ ________ (625)

- **Sewer Fund Expenses (First Year Operational)**

Operating Expenses (Excluding Depreciation and Reserves) $ ________ (626)

Annual Debt Service (on sewer bonds) $ ________ (627)

Other Non Operating Expenses $ ________ (628)

Total Expenses $ ________ (629)

- **Operating Ratio (623 ÷ 626 × 100)** ________ % (630)
- **Coverage Ratio ((625 − 626) ÷ 627 × 100)** ________ % (631)

Lines 626 - 628 With regard to sewer fund expenses, it is particularly useful to single out the operation, maintenance, and replacement expenses and annual debt service on outstanding sewer revenue bonds. Any other nonoperating expenses should be entered on line 628. This also should be done for the current year and the first year the system is operational.

Line 629 Add lines 626, 627, and 628.

Line 630 Since the issuer must be viewed as an operating entity, the operating ratio is an important indicator of the system's efficiency. It provides a comparison of the community's operating revenues and operating expenses. The ratio is calculated by dividing operating revenues by operating expenses and multiplying by 100. (623/626 x 100).

Low ratios are considered a warning because the enterprise must rely on nonoperating revenues, which tend to be unpredictable, to shore up operating shortfalls.

Line 631 Another key ratio in the analysis of an enterprise fund is the coverage ratio. It is calculated by dividing the net revenues of the fund (total revenues minus operating expenses) by the annual debt service on revenue bonds outstanding and multiplying by 100 ((625-626)/627 x 100).

A low coverage ratio means the enterprise will not be able to generate sufficient revenues to pay all cash expenses. In addition to examining the quantity of revenues, consideration should also be given to the stability and predictability of the "coverage."

Once Worksheet #6 is completed, the indicators can be entered in the Supplemental Information Sheet (Exhibit VII). The Supplemental Information Sheet's lower section -- "What is the Community's Financial Condition" -- allows the indicators calculated in Worksheet #6 to be ranked as strong, average, or weak. The benchmark values shown on the Supplemental Information Sheet for strong, average, and weak values are based on national figures. It may be that State or regional figures are available which might better serve for ranking the community. In particular, property tax and debt indicators display a marked regional variation and State or regional averages for those indicators may be more desirable as benchmarks against which to measure a community's financial condition.

If after evaluating the eleven indicators you determine that your community's financial condition is weak, it may be useful to recalculate the indicators without the project to determine the extent to which the proposed project is the cause for the weak showing. It may be that the community would be in a poor financial position even without the impact of the proposed project. This additional analysis can determine whether the problem is with the proposed project or the community's current financial condition

Evaluating Results of the Analysis

As stated earlier, this Guidebook does not provide a fully developed credit analysis, but rather a brief, reliable basis for evaluating your community's ability to assume new debt. The information provides assistance but not the answer to whether your community should undertake the proposed project. Guidance documents are not intended to replace local judgment.

Throughout the Guidebook, we have stressed the importance of evaluating the results, whether positive or negative, in light of your community's particular circumstances. For example, a community that is dependent on a single industry with an uncertain future must look beyond the predominantly positive indicators that exist in the present.

The purpose of guidance is "to point in the right direction." Strong indicators should encourage your community to undertake the project as planned; weak indicators should caution against it, with particular attention paid to reviewing less costly alternatives. Whatever choice your community makes, however, it should benefit from a systematic analysis of financial capability as the project progresses through planning, design, and construction.

APPENDIX A

SELECTED REFERENCES

The following reference materials are recommended for communities that wish to acquire greater knowledge of financial indicators, municipal bond ratings, and sound financial practices.

Groves, Sanford M. and Godsey, W. Maureen. Evaluation of Local Government Financial Condition. Financial Trend Monitoring System: A Practitioners Workbook for Charting Trends and Interpreting Results. Financial Jeopardy: Practices and Policies that Can Affect Financial Condition. Financial Performance Goals: A Guide for Setting Long-Range Policies. Tools for Making Financing Decisions. Series of five handbooks. Washington, DC: International City Management Association, 1980.

Five practical handbooks designed to help local government managers assess their fiscal condition. They focus on three broad variables: external influences such as local demands for resources and the national and regional economy; organizational issues including management practices and policies; and internal financial characteristics (such as revenue and expenditure patterns, debt and unfunded liabilities). For information contact ICMA, 1120 G Street, NW, Washington, DC 20005. (202) 626-4600.

Lamb, Robert and Rappaport, Stephen P. Municipal Bonds: The Comprehensive Review of Tax Exempt Securities and Public Finance. New York: McGraw-Hill Book Co., 1980.

The book is written for a broad audience but will be most useful to individuals desiring a general overview of most of the major institutional features of the tax-exempt market. Readers will find the introductory chapters on growth of the tax-exempt sector, the buyers and sellers of municipal bonds, and the rating agencies to be informative and generally entertaining. Order Municipal Bonds from McGraw-Hill, Inc., 1221 Avenue of the Americas, New York, NY 10020. (212) 997-1221.

Municipal Finance Officers Association. Governmental Accounting, Auditing, and Financial Reporting (GAAFR). Chicago, IL: MFOA, 1980. (234 pp)

First published in 1968, GAAFR received wide acceptance by governmental accountants and finance officers, other government officials, and independent practicing accountants as generally accepted accounting principles (GAAP) for State and local governments. Available from: Municipal Finance Officers Association, 180 North Michigan Avenue, Suite 800, Chicago, IL 60601. (312) 977-9700.

Rosenberg, Philip and Stallings, C. Wayne. Is Your City Heading for Financial Difficulty? A Guidebook for Smaller Cities and Other Governmental Units. Chicago, IL: Municipal Finance Officers Association, 1978. (43 pp)

This publication provides local officials with step-by-step procedures for analyses of their government's fiscal condition. It focuses on five major variables that contribute to fiscal decline: declining economic vitality; financial

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independence being lost; declining municipal productivity; deferral of current costs to the future; and ineffective municipal financial management practices. A series of detailed indicators is presented to assess each variable and a methodology for collecting and analyzing data on the variable is outlined. Available from MFOA, 180 N. Michigan Ave., Chicago, IL 60601. (312) 977-9700.

Smith, Wade S. The Appraisal of Municipal Credit Risk. New York: Moody's Investor Service, Inc., 1979. (442 pp)

A guide to the credit aspects of municipal bonds and notes. Divides the components of municipal credit evaluation into five areas: (1) population, wealth, and income; (2) governmental organization and powers; (3) financial operations; (4) general debt obligations; and (5) special and limited debt obligations. Available from the publisher, 99 Church Street, New York, NY 10007. (212) 553-0300.

Standard and Poor's Corporation. Standard and Poor's Rating Guide. New York: McGraw-Hill Book Co., 1979. (417 pp)

In this guide, a major rating corporation outlines the procedures and tools it uses for rating various types of public and private sector securities, including corporate bonds, municipal bonds, and bonds offered by public utilities, hospitals, and housing authorities. Major considerations in establishing a rating include economic base analysis, financial analysis, debt levels, and administrative factors. While concerned principally with private sector securities, this Guide provides municipal officials with valuable insight into the rating process. Available from McGraw-Hill Books, Princeton Road, Hightstown, NJ 08520. (212) 997-1221.

APPENDIX B

GLOSSARY OF FINANCIAL TERMS

ACCOUNTING PERIOD. A period at the end of which and for which financial statements are prepared.

ACCOUNTING PROCEDURES. All processes which discover, record, classify, and summarize financial information to produce financial reports and to provide internal control.

ACCOUNTING SYSTEM. The total structure of records and procedures which discover, record, classify, summarize and report information on the financial position and results of operations of a government or any of its funds, fund types, balanced account groups, or organizational components.

ACCOUNTS PAYABLE. A liability account reflecting amounts on open account owing to private persons or organizations for goods and services furnished by a government (but not including amounts due from other funds of the same government or to other governments).

ACCOUNTS RECEIVABLE. An asset account reflecting amounts owing on open account from private persons or organizations for goods and services furnished by a government (but not including amounts due from other funds of the same government). Although taxes and special assessments receivable are covered by this term, they should be recorded and reported separately in Taxes Receivable and Special Assessments Receivable accounts respectively. Amounts due from other funds or from other governments should also be reported separately.

ACCRUAL BASIS. The basis of accounting under which transactions are recognized when they occur, regardless of the timing of related cash flows.

ACCRUED EXPENSES. Expenses incurred but not due until a later date.

ACCUMULATED DEPRECIATION. A valuation account to record the accumulation of periodic credits made to record the expiration of the estimated service life of fixed assets.

ADVANCE REFUNDING BONDS. Bonds issued to refund an outstanding bond issue prior to the date on which the outstanding bonds become due or callable. Proceeds of the advance refunding bonds are deposited in escrow with a fiduciary, invested in U.S. Treasury Bonds or other authorized securities, and used to redeem the underlying bonds at maturity or call date and to pay interest on the bonds being refunded or the advance refunding bonds.

ASSESS. To value property officially for the purpose of taxation.

ASSESSED VALUATION. A valuation set upon real estate or other property by a government as a basis for levying taxes.

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ASSESSMENT. (1) The process of making the official valuation of property for purposes of taxation. (2) The valuation placed upon property as a result of this process.

ASSESSMENT ROLE. In the case of real property, the official list containing the legal description of each parcel of property and its assessed valuation. The name and address of the last known owner are also usually shown. In the case of personal property, the assessment roll is the official list containing the name and address of the owner, a description of the personal property, and its assessed value.

ASSETS. Resources owned or held by a government which have monetary value.

AUDIT. A methodical examination of utilization of resources. It concludes in a written report of its findings. An audit is a test of management's accounting system to determine the extent to which internal accounting controls are both available and being used.

AUDIT PROGRAM. A detailed outline of work to be done and procedures to be followed in any given audit.

AUDIT REPORT. The report prepared by an auditor covering the audit or investigation made by him. As a rule, the report should include (a) a statement of the scope of the audit; (b) explanatory comments (if any) concerning exceptions by the auditor as to application of generally accepted auditing standards; (c) opinions; (d) explanatory comments (if any) concerning verification procedures; (e) financial statements and schedules; and (f) sometimes statistical tables, supplementary comments, and recommendations. The auditor's signature follows item (c) or (d).

AUDITOR'S OPINION. A statement signed by an auditor in which he or she states that he or she has examined the financial statements in accordance with generally accepted auditing standards (with exceptions, if any) and in which he or she expresses an opinion of some or all of the constituent funds and balanced account groups of the government as inappropriate.

BALANCE SHEET. The basic financial statement which discloses the assets, liabilities, and equities of an entity at a specified date in conformity with GAAP.

BASIC FINANCIAL STATEMENTS. Those financial statements, including notes thereto, which are necessary for a fair presentation of the financial position and results of operations of an entity in conformity with GAAP. Under Statement 1, basic financial statements include a balance sheet, an "all inclusive" operating statement, and (for proprietary funds, Pension Trust Funds, and Nonexpendable Trust Funds) a statement of changes in financial position.

BETTERMENT. An addition made to, or change made in, a fixed asset which is expected to prolong its life or to increase its efficiency over and above that arising from maintenance, and the cost of which is therefore added to the book value of the asset. The term is sometimes applied to sidewalks, sewers, and highways.

BOND. A written promise to pay a specified sum of money called the face value or principal amount, at a specified date or dates in the future, called the maturity date(s), together with periodic interest at a specified rate. The difference between a note and a bond is that the latter runs for a longer period of time and requires greater legal formality.

BOND ANTICIPATION NOTES. Short-term, interest-bearing notes issued by a government in anticipation of bonds to be issued at a later date. The notes are retired from proceeds of the bond issue to which they are related.

BOND DISCOUNT. The excess of the face value of a bond over the price for which it is acquired or sold. The price does not include accrued interest at the date of acquisition or sale.

BOND FUND. A fund formerly used to account for the proceeds of general obligation bond issues. Such proceeds are now accounted for in a Capital Projects Fund.

BOND ORDINANCE OR RESOLUTION. An ordinance or resolution authorizing a bond issue.

BOND PREMIUM. The excess of the price at which a bond is acquired or sold over its face value. The price does not include accrued interest at the date of acquisition or sale.

BONDED DEBT. That portion of indebtedness represented by outstanding bonds.

BONDS AUTHORIZED AND UNISSUED. Bonds which have been legally authorized but not issued and which can be issued and sold without further authorization. This term must not be confused with the term "margin of borrowing power" or "legal debt margin," either one of which represents the difference between the legal debt limit of a government and the debt outstanding against it.

BONDS ISSUED. Bonds sold.

CALLABLE BOND. A type of bond which permits the issuer to pay the obligation before the stated maturity date by giving notice of redemption in a manner specified in the bond contract.

CAPITAL OUTLAY. Expenditures which result in the acquisition of or addition to fixed assets.

CAPITAL PROJECTS FUND. A fund created to account for financial resources to be used for the acquisition or construction of major capital facilities (other than those financed by proprietary funds, Special Assessment Funds, and Trust Funds).

CASH. An asset account reflecting currency, coin, checks, postal and express money orders, and bankers' drafts on hand or on deposit with an official or agent designated as custodian of cash and bank deposits. All cash must be accounted for as a part of the fund to which it belongs. Any restrictions or limitations as to its availability must be indicated in the records and statements. It is not necessary, however, to have a separate bank account for each fund unless required by law.

CASH BASIS. A basis of accounting under which transactions are recognized only when cash changes hands.

CERTIFICATE OF CONFORMANCE IN FINANCIAL REPORTING PROGRAM. A voluntary program administered by MFOA to encourage governments to publish efficiently organized and easily readable CAFRs and to provide peer recognition and technical assistance to the finance officers preparing them.

COMPREHENSIVE ANNUAL FINANCIAL REPORT. (CAFR). The official annual report of a government. It includes five Combined Statements - Overview (the "liftable" GPFS) and basic financial statements for each individual fund and account group prepared in conformity with GAAP and organized into a financial reporting pyramid. It also includes supporting schedules necessary to demonstrate compliance with finance-related legal and contractual provisions, extensive introductory material, and a detailed Statistical Section. Every government should prepare and publish a CAFR as a matter of public record.

CONTINGENT LIABILITIES. Items which may become liabilities as a result of conditions undetermined at a given date, such as guarantees, pending law suits, judgments under appeal, unsettled dispute claims, unfilled purchase orders, and uncompleted contracts. All contingent liabilities should be disclosed within the basic financial statements, including the notes thereto.

COST. (1) The amount of money or other consideration exchanged for property or services. Costs may be incurred even before money is paid; that is, as soon as liability is incurred. Ultimately, however, money or other consideration must be given in exchange. Again, the cost of some property or service may, in turn, become a part of the cost of another property or service. For example, the cost of part of all of the materials purchased at a certain time will be reflected in the cost of articles made from such materials or in the cost of those services in the rendering of which the materials were used. (2) Expense.

COUPON RATE. The interest rate specified on interest coupons attached to a bond. The term is synonymous with nominal interest rate.

COVERAGE. The ratio of net revenue available for debt service to the average annual debt service requirements of an issue of revenue bonds.

CURRENT. A term which, applied to budgeting and accounting, designates the operations of the present fiscal period as opposed to past or future periods. It usually connotates items likely to be used up or converted into cash within one year.

CURRENT ASSETS. Those assets which are available or can be made readily available to finance current operations or to pay current liabilities. Those assets which will be used up or converted into cash within one year. Some examples are cash, temporary investments, and taxes receivable which will be collected within one year.

CURRENT LIABILITIES. Liabilities which are payable within one year.

DEBT. An obligation resulting from the borrowing of money or from the purchase of goods and services. Debts of governments include bonds, time warrants, and floating debt.

DEBT LIMIT. The maximum amount of gross or net debt which is legally permitted.

DEBT SERVICE FUND. A fund established to account for the accumulation of resources for, and the payment of, general long-term debt principal and interest. Formerly called a sinking fund.

DEBT SERVICE FUND REQUIREMENTS. The amounts of revenue which must be provided for a Debt Service Fund so that all principal and interest payments can be made in full on schedule.

DEBT SERVICE REQUIREMENT. The amount of money required to pay interest on outstanding debt, serial maturities of principal for serial bonds, and required contributions to accumulate monies for future retirement of term bonds.

DIRECT NET DEBT. Gross direct debt less debt that is self-supporting (revenue bonds) and double-barreled bonds (general obligation bonds secured by earmarked revenues which flow outside the general fund).

ENTERPRISE FUND. A fund established to account for operations (a) that are financed and operated in a manner similar to private business enterprises -- where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges or (b) where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control, accountability, or other purposes. Examples of Enterprise Funds are those for water, gas, electric utilities, swimming pools, airports, parking garages, and transit systems.

ENTITY. The basic unit upon which accounting and/or financial reporting activities focus. The basic governmental legal and accounting entity is the individual fund and account group. Under NCGA Statement 1, governmental GAAP reporting entities include (1) Combined Statements - Overview (the "liftable" GPFS) and (2) financial statements of individual funds (which may be presented as columns on Combining Statements - By Fund Type, on physically separate individual fund statements, or both). The term "entity" is also sometimes used to describe the composition of "the government as a whole" (whether the library is part of the city or a separate government, whether the school system is part of the county or an independent special district, etc.).

EXPENDITURES. Decreases in net financial resources. Expenditures include current operating expenses which require the current or future use of net current assets, debt service, and capital outlays.

EXPENSES. Decreases in net total assets. Expenses represent the total cost of operations during a period regardless of the timing of related expenditures.

FAMILY. A family consists of a householder and one or more other persons living in the same household who are related to the householder by birth, marriage, or adoption; all persons who are related to the householder are regarded as members of his or her family. Not all households contain families, because a household may be composed of a group of unrelated persons or one person living alone.

FULL FAITH AND CREDIT. A pledge of the general taxing power for the payment of debt obligations. Bonds carrying such pledges are referred to as general obligation bonds or full faith and credit bonds.

FUND. A fiscal and accounting entity with a self-balancing set of accounts recording cash and other financial resources, together with all related liabilities and residual equities or balances, and changes therein, which are segregated for the purpose of carrying on specific activities or attaining certain objectives in accordance with special regulations, restrictions, or limitations.

GENERALLY ACCEPTED ACCOUNTING PRINCIPLES (GAAP). Uniform minimum standards of and guidelines to financial accounting and reporting. They govern the form and content of the basic financial statements of an entity. GAAP encompass the conventions, rules, and procedures necessary to define accepted accounting practice at a particular time. They include not only broad guidelines of general application, but also detailed practices and procedures. GAAP provides a standard by which to measure financial presentations.

GENERALLY ACCEPTED AUDITING STANDARDS (GAAS). Measures of the quality of the performance of auditing procedures and the objectives to be attained through their use. They are concerned with the auditor's professional qualities and with the judgment exercised in the performance of an audit. Generally accepted auditing standards have been prescribed by (1) the American Insititute of Certified Public Accountants (AICPA) and (2) the U.S. General Accounting Office (GAO) in Standards for Audit of Governmental Organizations, Programs, Activities, & Functions (the "yellow" book).

GENERAL OBLIGATION BONDS. Bonds for the payment of which full faith and credit of the issuing government are pledged.

GROSS DIRECT DEBT. The total amount of bonded debt of a government (general obligation bonds plus revenue bonds).

HOUSEHOLD. A household consists of all the persons who occupy a housing unit. A house, an apartment, or other group of rooms, or a single room is regarded as a housing unit, when it is occupied or intended for occupancy as separate living quarters. A household includes the related family members and all the unrelated persons, if any, such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit, or a group of unrelated persons sharing a housing unit as partners, is also counted as a household.

INDUSTRIAL REVENUE BONDS. Bonds issued by governments, the proceeds of which are used to construct facilities for a private business enterprise. Lease payments made by the business enterprise to the government are used to service the bonds. Such bonds may be in the form of general obligation bonds, combination bonds, or revenue bonds.

LEVY. (Verb) To impose taxes, special assessments, or service charges for the support of governmental activities. (Noun) The total amount of taxes, special assessments, or service charges imposed by a government.

LIABILITIES. Debt or other legal obligation arising out of transactions in the past which must be liquidated, renewed, or refunded at some future date. This term does not include encumbrances.

MEDIAN INCOME. The median income is the amount which divides the distribution into two equal groups, one having incomes above the median, and the other having incomes below the median.

MODIFIED ACCRUAL BASIS. A basis of accounting under which revenues are recognized when they become both "measurable" and "available to finance expenditures of the current period" and expenditures are recognized when the related fund liability is incurred.

MUNICIPAL IMPROVEMENT CERTIFICATES. Certificates issued in lieu of bonds for the financing of special improvements. As a rule, these certificates are placed in the contractor's hands for collection from the special assessment payers.

NET REVENUES AVAILABLE FOR DEBT SERVICE. Proprietary fund gross operating revenues less operating and maintenance expenses but exclusive of depreciation and bond interest. "Net revenue available for debt service" as thus defined is used to compute "coverage" on revenue bond issues. See Coverage. Under the laws of some states and the provisions of some revenue bond indentures, "net revenues available for debt service" for computation of revenue bond coverage must be computed on a cash basis rather than in conformity with GAAP.

NET INCOME. Proprietary fund excess of operating revenues, nonoperating revenues, and operating transfers-in over operating expenses, nonoperating expenses, and operating transfers-out.

NONOPERATING EXPENSES. Proprietary fund expenses which are not directly related to the fund's primary service activities.

NONOPERATING PROPERTIES. Properties which are owned by an Enterprise Fund but which are not used in the provision of the fund's primary service activities.

NONOPERATING REVENUES. Proprietary fund revenues which are incidental to, or by-products of, the fund's primary service activities.

OFFICIAL STATEMENT. A legal document which summarizes all the salient features of the underlying documents and agreements which support a municipal bond offering. It is considered the disclosure document which presents information that is "material" to the offering. The official statement should contain what a reasonable investor would need to know in making a decision about the issue. Thus this document will usually include a description of the issuer, a description of the security of the bond, a summary of the principal financing documents, any feasibility studies which relate to the security, and any other "key information."

OVERALL NET DEBT. The sum of direct net debt and overlapping debt.

OVERLAPPING DEBT. The proportionate share of the debts of local governments located wholly or in part within the limits of the reporting government which must be borne by property within each government. Except for special assessment debt, the amount of debt of each unit applicable to the reporting unit is arrived at by (1) determining what percentage of the total assessed value of the overlapping jurisdiction lies within the limits of the reporting unit, and (2) applying this percentage to the total debt of the overlapping jurisdiction. Special assessment debt is allocated on the basis of the ratio of assessments receivable in each jurisdiction which will be used wholly or in part to pay off the debt to total assessments receivable which will be used wholly or in part for this purpose.

OPERATING INCOME. The excess of proprietary fund operating revenues over operating expenses.

OPERATING REVENUES. Proprietary fund revenues which are directly related to the fund's primary service activities. They consist primarily of user charges for services.

REVENUE BONDS. Bonds whose principal and interest are payable exclusively from earnings of an Enterprise Fund. In addition to a pledge of revenues, such bonds sometimes contain a mortgage on the Enterprise Fund's property.

REVENUES. In general terms, money received in exchange for the delivery of goods and services. A more precise definition is the additions to assets, such as cash or accounts receivable, which: (1) do not increase any liability, such as a debt obligation; (2) do not represent a recovery of an expenditure, such as results from a return of defective purchased equipment; (3) do not represent the cancellation of certain liabilities without a corresponding increase in other liabilities or a decrease in assets, such as forgiveness of a debt; and (4) are not contributions made to fund businesslike enterprises.

SERIAL ANNUITY BONDS. Serial bonds in which the annual installments of bond principal are so arranged that the combined payments for principal and interest are approximately the same each year.

SERIAL BONDS. Bonds whose principal is repaid in periodic installments over the life of the issue.

SINKING FUND. A fund established to account for the accumulation of resources for, and the payment of, the principal and interest of general long-term debt.

SPECIAL ASSESSMENT. A compulsory levy made against certain properties to defray part or all of the cost of a specific improvement or service deemed to primarily benefit those properties.

SPECIAL ASSESSMENT BONDS. Bonds payable from the proceeds of special assessments. If the bonds are payable only from the collections of special assessments, they are known as special assessment bonds. If, in addition to the assessments, the full faith and credit of the government are pledged, they are known as general obligation special assessment bonds.

SPECIAL ASSESSMENT FUND. A fund used to account for the financing of public improvements or services deemed to benefit primarily the properties against which special assessments are levied.

SPECIAL DISTRICT. An independent unit of local government organized to perform a single governmental function or a restricted number of related functions. Special districts usually have the power to incur debt and levy taxes; however, certain types of special districts are entirely dependent upon enterprise earnings and cannot impose taxes. Examples of special districts are water districts, drainage districts, flood control districts, hospital districts, fire protection districts, transit authorities, port authorities, and electric power authorities.

SPECIAL DISTRICT BONDS. Bonds issued by a special district.

STATEMENT OF REVENUES AND EXPENDITURES. The basic financial statement which is the governmental fund and Expendable Trust Fund GAAP operating statement. It presents increases (revenue and other financing sources) and decreases (expenditures and other financing uses) in an entity's net current assets.

STATEMENT OF REVENUES AND EXPENSES. The basic financial statement which is the proprietary fund, Nonexpendable Trust Fund, and Pension Trust Fund GAAP operating statement. It presents increases (revenues) and decreases (expenses) in an entity's net total assets.

APPENDIX C

CALCULATION OF CAPITAL RECOVERY FACTORS

If debt is to be issued at an annual interest rate of I percent (e.g., I = 10% = .10) for N years (e.g., N = 30 years) then the capital recovery factor, C, is:

$$C = I + \frac{I}{(1 + I)^N - 1}$$

The product of C times the amount of debt issued gives the amount of annual debt service payment. The successive years interest payment factor and principal payment factor are I_n and P_n for $1 \leq n \leq N$

where $I_1 = I$ $\quad P_1 = C - I$

$I_n = C - P_n$ $\quad P_n = (1 + I)P_n - 1$

and $I_n + P_n$ is the constant capital recovery factor C.

For example, to determine the debt service payment due each year on $2,500,000 borrowed for 15 years at 11 percent, first calculate the capital recovery factor:

$$C = .11 + \frac{.11}{(1 + .11)^{15} - 1}$$

$$= .11 + \frac{.11}{3.784,589}$$

$$= .11 + .0290652$$

$$= .1390652$$

Next, multiply the capital recovery factor times the principal borrowed to determine the annual debt service payment:

$$.139652 \times \$2,500,000 = \$347,663.10$$

Thus, each year for 15 years, a payment of $347,663.10 must be made to completely pay off the $2,500,000 debt.

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APPENDIX D

SENSITIVITY ANALYSIS

Filling out the various worksheets of the Guidebook requires a number of estimates where precise data are not available. In addition, it is frequently the case that some of the numbers used constitute the best judgment of various individuals (engineers, accountants, managers, etc.). If an error were made in one of these estimates, how serious would the resulting change in cost per household be? In other words, how "sensitive" is the bottom line (cost per household) to the various numbers and estimates used to calculate it? What follows is an example of a sensitivity analysis that might be prepared for your jurisdiction once you have completed the various worksheets of the Guidebook.

Sensitivity Analysis: An Example

Any sensitivity analysis begins with a base case which consists of the estimates used in completing the worksheets. For our example of Anytown, USA, the base case assumes a borrowing of $750,000 at 10 percent for 20 years which results in annual debt service payments of $88,094.72. In addition, Worksheet #3C indicated an estimate of $79,000 for "O,M&R" for the proposed facility. This results in a gross annual cost of $167,094.72. Since Anytown has 1,400 Equivalent Household Units (EHU) (basically the number of households that will pay the sewer service charge since there is little or no industry and every EHU is assigned to a household), the resulting household cost is $119.35 on a yearly basis or $9.95 on a monthly basis.

ANYTOWN, USA SENSITIVITY ANALYSIS: BASE CASE

Amount to be borrowed	$ 750,000
Rate (percent/100)	.1
Term (years)	20
Debt Service Factor	.1174596
Debt Service	$ 88,094.72
New O,M&R	79,000
Gross Annual Cost	167,094.72
Number of EHU's	1400
Per Household Cost-Yearly	119.35
Per Household Cost-Monthly	9.95

But what if the estimate of the interest rate that will be paid on the bonds were too low? What if the rate required to sell the bonds were 11 percent? As the calculations show, the cost per household would increase by 36 cents on a monthly basis:

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ANYTOWN, USA SENSITIVITY ANALYSIS: RATE

Amount to be borrowed	750,000
Rate	.11<==========
Term	20
Debt Service Factor	.1255756
Debt Service	94,181.73
New O,M&R	79,000
Gross Annual Cost	173,181.73
Number of EHU's	1400
Per Household Cost-Yearly	123.70
Per Household Cost-Monthly	10.31

Errors in estimation are not limited to the vagaries of the marketplace. It is an unfortunate fact that estimates of construction cost are often below the actual cost. What would be the impact of an increase in the amount borrowed by $100,000? In this case calculations show that the result would be an increase of 70 cents on a monthly basis.

ANYTOWN, USA SENSITIVITY ANALYSIS: AMOUNT

Amount to be borrowed	850,000<==========
Rate	.1
Term	20
Debt Service Factor	.1174596
Debt Service	99,840.68
New O,M&R	79,000
Gross Annual Cost	178,840.68
Number of EHU's	1400
Per Household Cost-Yearly	127.74
Per Household Cost-Monthly	10.65

Many jurisdictions have experienced problems with obtaining accurate estimates of operating costs as well as capital costs. What would be the impact of an operating cost of $130,000 instead of the original estimate of $79,000? Calculation shows that the resulting monthly charge would be increased by $3.03.

ANYTOWN, USA SENSITIVITY ANALYSIS: OM&R

Amount to be borrowed	750,000
Rate	.1
Term	20
Debt Service Factor	.1174596
Debt Service	88,094.72
New O,M&R	130,000<==========
Gross Annual Cost	218,094.72
Number of EHU's	1400
Per Household Cost-Yearly	155.78
Per Household Cost-Monthly	12.98

It is worth noting that an error in the estimate of operating costs that is one half the size of the variation in capital costs ($51,000 vs. $100,000) produces a per household increase of 30 percent ($12.98/$9.94). Clearly, great attention should be devoted to determining the accuracy of the estimates of operating costs.

The examples given above do not exhaust the possibilities for a sensitivity analysis, but they do indicate the range of issues which a sensitivity analysis can address.

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